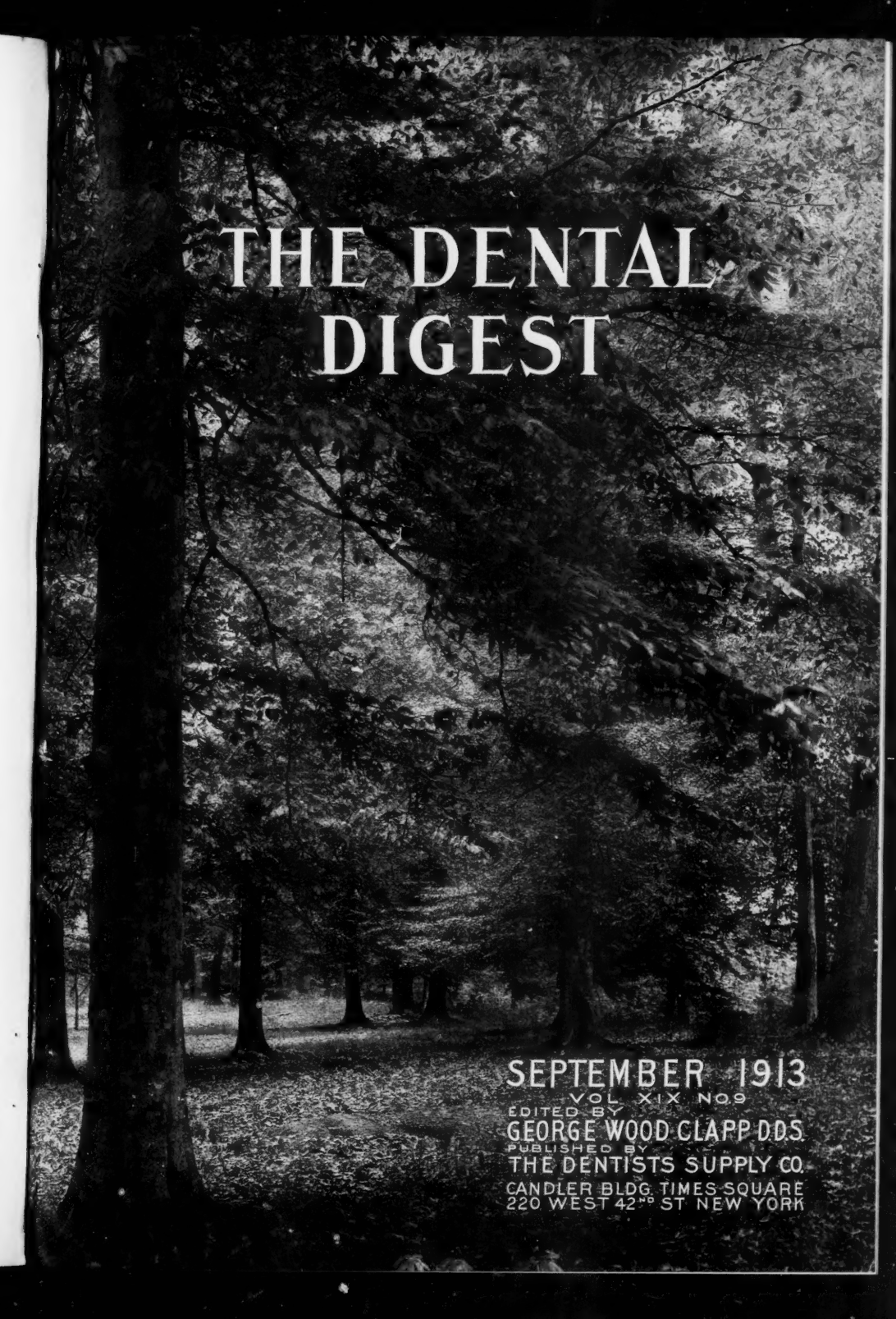
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THE DENTAL DIGEST

GEORGE WOOD CLAPP, D.D.S., Editor

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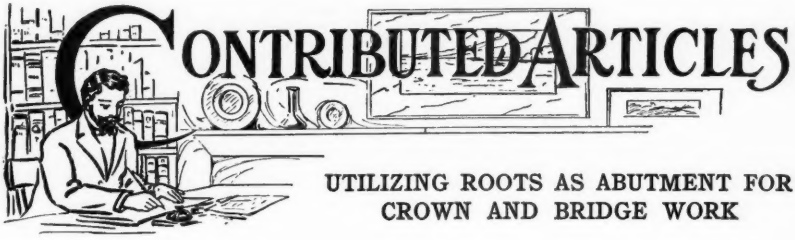


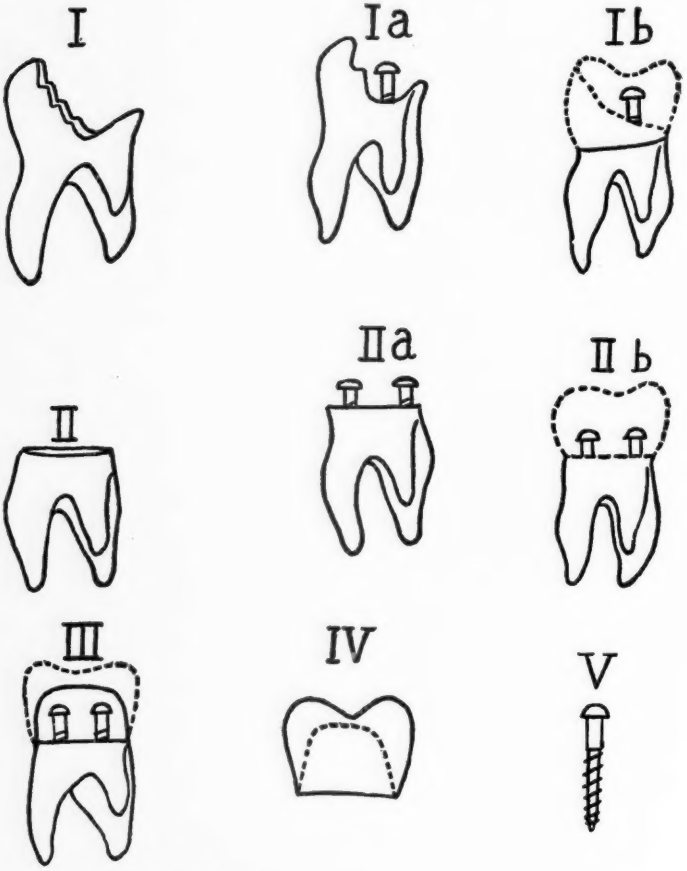
UTILIZING ROOTS AS ABUTMENT FOR CROWN AND BRIDGE WORK

BY LOUIS ENGLANDER, D.D.S., PHILADELPHIA, PA.

ANY root in the mouth which is firm can be used for a crown, either by itself or as an abutment for a bridge. Treat root and fill root canals same as in ordinary root canal procedure. Take measurement of root as for a two-piece crown, make band and fit same, attach a hand-carved cusp, as per "Moletti's Method"; now use a right angle or straight No. 2 or No. 4 bur, or whatever root will permit. Now take a $\frac{1}{4}$ No. 1, or $\frac{3}{8}$ No. 1 size brass round or flat-headed screw (these can be bought at any large, up-to-date hardware store at 20 cents a box of 100). Use either a screw driver (one you get with your engine) or get a blank for a right angle bur and make one for right angle.

Screw the screw into root canal, and let it get a good hold on tooth substance, without enough force to break root. Fit crown on to see if screw is too long; if so, cut end off with a pair of sharp wedge cutters, wire nippers, or else grind with a stone wheel to desired length. Again, you may unscrew screw and cut excess off and then use a separating wheel and re-groove screw.

Place crown on root again and let patient bite to see if bite is not held apart. If correct, proceed as follows:



I. A broken-down tooth.
Ia. Tooth ground and screw in root.
Ib. Crown placed over tooth.
II. Where crown of tooth is entirely gone.
IIa. Same with screw in roots.
IIb. Same with crown in place.
III. Built-up tooth with cement (dotted lines approximate crown line).
IV. Crown.
V. Round-headed brass screw.

For placing crown on either a broken-down tooth or root where it is not necessary to remove same for bridgework, dry crown as usual, place your mixed cement in crown, have your tooth well napkined to prevent moisture, place your crown containing cement over tooth same

as usual, and have patient close teeth and press crown into place, holding crown into place with teeth for about three minutes, and clean cement from around crown as usual.

Where a broken-down tooth or root is used for an abutment for bridgework, fit and make crown as explained before; place pin into root or roots, try crown on, but *do not cement;* first place wax in crown as follows, taking away undercuts, then place cement in crown and cement as usual, leaving cement set. Wait about five minutes, then heat crown slightly and remove. The cement setting and heat applied externally will melt wax and crown will be very easy to remove. Replace crown after removing wax, and take impression for bridge in ordinary way.

The first objection one will bring up is, does not the screw rust, or in some way or other affect the root or gums? How can this happen? First, brass does not rust; second, if the apical end of root is closed and crown is cemented into place, no moisture can get in if dryness has been observed.

Second, what strength has such a crown? As much strength as an ordinary crown, pivot tooth, post and plate or Richmond Crown. I have used this method for nine years, and crowns which I have placed in the mouth at that time, I still have the pleasure of seeing do good service.

Again, I have utilized this method and saved teeth in the mouth where people could not afford to have bridgework done at the time, and removed crowns as late as six years later, utilizing crown and abutment for bridgework, and have never found any infection or deterioration of screws. One case in particular. A man with a lower left bridge extending from lower left second molar to first bicuspid on same side, molar tooth built up with two screws—no teeth in lower right to masticate on. In the mouth for seven years and still in excellent shape and doing service.

960 Franklin Street.

Bridgework: The Impression.—For bridgework a plaster impression is always indicated because the employment of any material which will draw perceptibly in removing from the mouth is not reliable; a wax "bite" is to be preferred to modeling composition because there is less danger of breaking off the plaster teeth in adjusting to the cast.—H. J. Goslee, D.D.S., *Items of Interest.*

ORTHODONTIA OF THE DECIDUOUS TEETH*

By E. A. Bogue, M.D., D.D.S., New York City

Eleventh and Final Paper

Jim D., four years and nine months old, came for treatment January 2, 1912.

This case presented the exact opposite of W. G., for this *upper* arch was too narrow, biting inside the lower teeth on the left-hand side. Yet the lower incisors were crowded and needed anterior spreading.

As a result of this narrowed upper arch the nasal passages were considerably interfered with, and an apparatus was put on to spread the upper dental arch and incidentally the nasal passages. Later intermaxillary dental rubber was used to draw the lower teeth forward while the upper ones assumed the proper arch.

Jim D.—Models showing depression on the left side of mouth and face. See also pages 491 and 494.

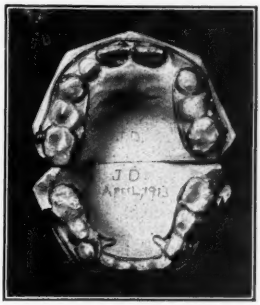
Both these cases showed almost an identical depression on the left-hand side of the mouth and face, though the depression arose in one place from a narrowed upper arch and in the other from a narrowed lower. One of the later efforts in both these cases to obtain results was by promoting the performance of function by mastication. When the mastication of food did not seem sufficient, chewing gum was resorted to, so as to make the play, even, help forward the work.

*These papers were commenced in the October, 1912, number.

I have heard of two or three cases where efforts at enlargements of the arches had been made even earlier than this. Our case at four years, if one may judge of the published pictures, seems a pretty good success. But I doubt whether anything beyond a spreading of the arches can ever prove advantageous much earlier than five years and a half old. Such spreading is simply an aid to nature, supplying by means of a little gold spring the extra developmental force which the heart and arterial system did not possess.

The actual time consumed in any of these operations that I have described has been but a few days each. The rest of the time the fixtures have lain inert, simply preventing retrocession. So, also, if the child is not frightened, is well governed and amenable, a very few days at a time are all that will be required to accomplish remarkable results.

Until the development and occlusion of the first permanent molars, it is always best, so far as we now know, to keep the fixtures which have done corrective work in their places to make sure that nothing is lost of what has been gained.



Jim D.—Model in April, 1913.

Walter G., a little boy, was confided to me at three and a half years of age. I did not at first recognize any fault in his temporary dentition, but after making study models I found that the lower arch of teeth was so much smaller and narrower than the upper, and closed so much farther back than they should, that he could not masticate, and the problem was presented not only to enlarge the lower arch of temporary teeth (an operation that I never saw attempted before), but to draw it forward and the upper arch backward, until the first permanent molars that are due to erupt at about six years of age shall be made to erupt in correct occlusion with each other. If I failed in this a serious deformity was impending.

At how early an age it is best to begin to give mechanical assistance to aid the eruption of permanent teeth, by correcting irregularities among the temporary teeth, we do not know. Of one thing only we are sure, any deflection from normality is more easily corrected at the start than after the deflection has become confirmed.

As there are three main divisions, and four subdivisions of known irregularities, we may conclude that we are justified in correcting a fully recognized abnormality as soon as we can fully recognize it, but we may expect to make mistakes until our numbers of cases shall have taught us ways that are sure.

Walter G.—Models showing defect on both sides of the face. See also page 494.

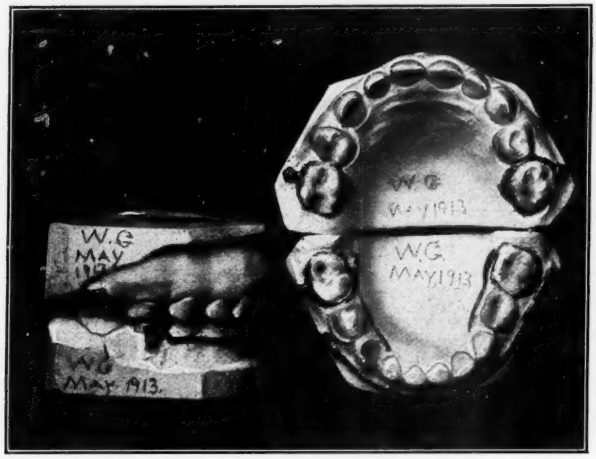
Walter G., three and a half years old, was first seen by me on December 14, 1911. History as follows:

Tonsils and adenoids removed March 12, 1911. Does not seem to masticate anything. General health good, not generally a mouth breather. Took impressions and made models. Upper temporary central incisor measured $\frac{21}{100}$ inch at the broadest part, hence the size of the upper arch should have been on a radius of $\frac{78}{100}$ (Hawley measurements). It was found to be $\frac{70}{100}$. The lower arch of temporary teeth closed so far within (lingually to) the upper arch that there was no articulation possible for masticating purposes.

He closed the teeth indiscriminately to right or left, as his attention happened to be drawn. So his models were photographed showing the defect on one side and then on the other. The glenoid fossæ at this

age being broad and shallow from front to rear, allow considerable play to the rami when the mandible is moved from side to side.

The left side of the mouth seeming rather smaller than the right, I placed a band on the left lower second temporary molar, with a *vertical* tube soldered to its buccal side (Ainsworth plan), and a gold and platinum wire to its lingual side. On the right lower second molar band I had a *horizontal* tube, such as is generally advocated, and lingual wire. Into these tubes was placed a gold and platinum arch wire, No. 20 gauge, with a hook on the left end to go into the vertical tube, while on the right end a screw was cut to carry a small nut that held the



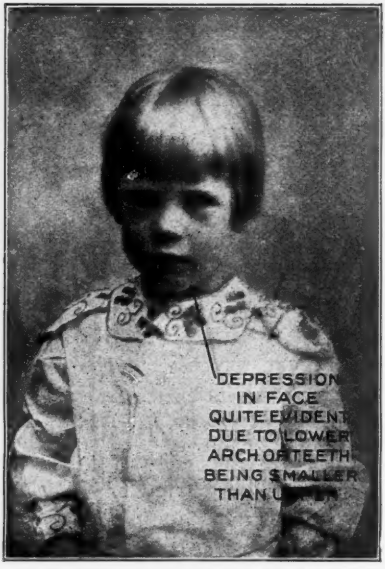
Walter G.—Models in May, 1913.

arch at the proper distance from the other teeth when its end rested in the horizontal tube, the object of this arrangement being to tip the right second molar into position, while it was hoped the left second molar would be drawn bodily into its proper position. About $\frac{3}{16}$ in. spread was given to this arch on June 28th, and the case having been made secure was left for the summer. He was not seen again until October 7th, when a time was arranged to see him on October 16th for attention.

At that time it was found that the right molar had been tipped outward quite far enough, but that the left molar had moved but little, and was getting bitten upon on *its* buccal side. The arch was therefore removed and the scheme reversed, i. e., the horizontal tube was placed on the left molar and the vertical tube on the right, and the arch was re-

Jim D. before operation.

Jim D. after operation.



Walter G. before operation.

Walter G. after operation.

placed. On December 11th the left molar was nearly right in its occlusion, while the molar on the right side maintained its too upright position (it should lean a little inward), as it had to help the left molar into an upright position by carrying its end of the arch.

In this case my judgment was at fault in supposing that the right molar needed tipping and the left moving bodily. They *both* needed tipping and moving bodily.

Furthermore, although the proper spreading of the temporary arches could be obtained in a very short time, it was not thought best to move the teeth rapidly, but only to use the smallest and gentlest means to get the desired width of arch; and when this width was secured, it was found that he did not properly close his teeth, but that the mandible and lower teeth still closed far back of their proper occlusion. So some little rubber intermaxillary elastics were put on to draw the back lower teeth forward while a corresponding gentle pressure backward was made on the upper row of teeth from front to rear by means of the arch wire.

It was soon found that so young a patient could not wear intermaxillary rubbers to advantage, as they were constantly being displaced, so they were left off entirely, and the little fellow was set to chewing gum or licorice root in order to get a full exercise of the function of mastication, hoping, as the arches were both broad enough, that nature would adjust the articulation. Two months shows good progress in the right direction, and the patient has been dismissed until the autumn.

63 West Forty-eighth Street.

Broken Broach in Root-Canal.—Make no effort to remove it by instrumentation, but at once fill the canal with sulphuric acid (50 per cent solution), and fill the crown cavity or pulp chamber with sodium bicarbonate solution. As the alkali makes its way rootward successive explosions of carbonic acid gas will occur, and eventually gas will be formed beyond the broken broach, and the latter will come up into the crown cavity in a boiling, frothy mass of matter.—J. R. Callahan, *Indiana Dental Journal* (Broomell's *Practical Dentistry*).

THE PRINCIPLES AND PRACTICE OF TOOTH EXTRACTION

By William J. Lederer, D.D.S., New York City

Third Paper

Tooth extractions can be divided into:—

1. Normal Extractions.
2. The Removal of Roots.
3. The Removal of Impacted Teeth.
4. The Removal of Unerupted Teeth.

These different types of operations demand a varying technique; nevertheless, all extractions are governed by principles, based upon physical laws, which demand observation.

Fig. 7.—Forceps placed loosely across the hand.

It may appear like "Carrying coals to Newcastle" to present the following points, but many men, practising for years, fail to note these fundamental principles and therefore fail ignobly when they aim to do their best.

1. *Normal Extractions*

For convenience in teaching, the writer divides the operation of tooth extraction into four stages:—

1. The grasping of the forceps.
2. Application of the instrument.
3. The closing of the instrument about the diseased organ.
4. The actual removal of the tooth or root.

The forceps should be grasped and placed loosely across the hand as shown in Fig. 7. If the instrument is grasped tightly, control over the same as well as ease of manipulation are lost, both very necessary attributes to a successful operation.

In holding upper forceps the hand is then curved about the handles, the index finger being placed between them. The hand is now rotated and the beaks applied bucco-palatally to the cervical portion of the tooth, pointing the distal part of the instrument away from the median line. (Fig. 8.)

The forceps are so adjusted that the *long axis of the beaks runs parallel with the long axis of the root.* This constitutes the second stage of the operation and is one of the steps important to be observed.

Fig. 8.—Shows the application of forceps to a left upper anterior tooth.

If the forceps are applied incorrectly, the force used first in driving the forceps home, and then in extracting will travel in a wrong direction and frequently cause the tooth to fracture, produce unnecessary mutilation or both. (Fig. 9, page 498.)

1. Represents a pair of forceps *correctly* applied to a Left Upper Canine.

E.F. indicates the long axis of both the tooth and forcep-beaks; it also shows the path in which the force, requisite to drive the instrument home and to extract the tooth, will travel.

A.B.D.C. is a rectangle which represents diagramatically the area or amount of resistance offered to the operator.

2. Represents the same forceps applied *incorrectly.*

c.d. represents the long axis of the tooth.

H.G. represents the long axis of the forcep-beaks (not parallel to *c.d.*). *H.G.* also shows the path along which the applied force will travel.

I.K.L.J. represents the area or amount of resistance to be overcome, which is about three to four times greater than in the preceding illustration.

The "area of resistance" is obtained by marking the widest cervical portion of tooth embedded in bone *B.D.*, then drawing a line marking the long axis of the tooth *E.F.* and a tangent to the apex of the root *A.C.*, parallel to *B.D.* Now lines are erected at *B.* and *D.* parallel to

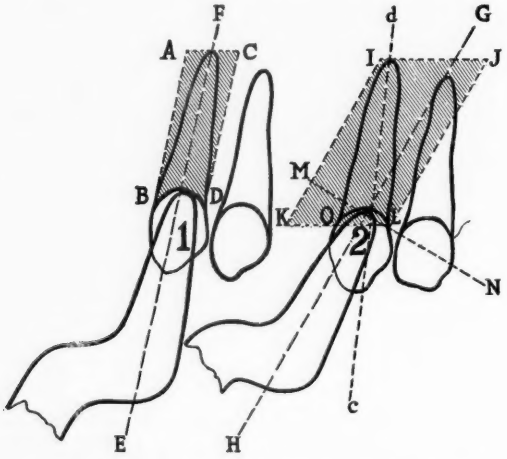


Fig. 9.—Forceps correctly and incorrectly applied to upper teeth (see text on pages 497 and 498).

E.F. and extended upward till they intersect the tangent *A.C.*; this gives us *A.B.D.C.* (shaded portion) and expresses diagramatically the area of resistance to be overcome in extracting the tooth 1.

That the forcep-beaks are incorrectly applied to Canine 2, is shown by the fact that the long axis of the beaks *H.G.* does not run parallel with *c.d.*, the long axis of the tooth; we therefore get a much greater "area of resistance" (shaded portion) and the tooth is apt to fracture at *M.N.*, or in exerting sufficient force to overcome the resistance offered by the solid block of tissue *K.L.J.I.* the alveolus will splinter or other injury result, without (in many cases) the tooth leaving the socket.

The "area of resistance" may appear rather "theoretical"; the writer, however, has seen this theory demonstrated, as a fact, in the mouth innumerable times, both in the upper and lower jaws.* Its object is to impress the student with the importance of correct forceps ap-

* The writer asks the reader to attempt an extraction according to both illustrations and watch results.

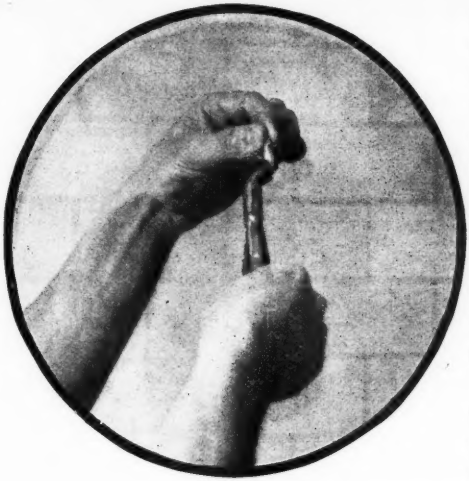


Fig. 10.

plication. After the forceps have been correctly applied, the index finger is withdrawn from between the handles and placed on top of the middle finger, the thumb is brought around the handles and the beaks closed about the tooth. (Fig. 10.) This terminates the third stage of the operation.

In closing the forceps too much force should not be exerted as the tooth will then be fractured by the sharp beaks. The forceps should be closed just tight enough to join tooth and forceps. In fact, we must look upon forceps as elongations of our fingers. Hand, forceps and tooth must become one object.

The fourth stage of the operation, the actual removal of the tooth from its socket, is neither a pulling nor a jerking process, but rather first, the determination of the direction of least resistance, by luxation and then a teasing of the tooth out of its socket.

In removing a tooth from its alveolus there are two forces to be overcome:—

1. The pericemental attachment.

2. The mechanical insertion of the tooth in its socket. The latter is particularly marked in multirooted teeth and is well illustrated in old skulls, wherein the pericementum is dried up and plays no part in the retention of the teeth; still they are retained by the shape of their roots, as a peg is held in a board—by adhesion. Bearing these

Fig. 11.

two "retentive factors" in mind, we formulate the actual extraction accordingly.

The pericemental attachment is broken up, by driving the root into the socket, then luxating the same inward and outward and then continuing this rocking motion, till tactile sense indicates the direction of least resistance and actually teases the tooth out of its socket.

In extracting lower teeth, the forceps are grasped as in figure 7, the index finger is introduced between the handles from below, the hand is closed about the handles, but the thumb is extended along the shank and the hand not rotated. (Fig. 11.)

After adjusting the forceps, the index finger is withdrawn from between the handles and placed above the middle finger; the thumb is kept extended and the tooth luxated and withdrawn. (Fig. 12.)

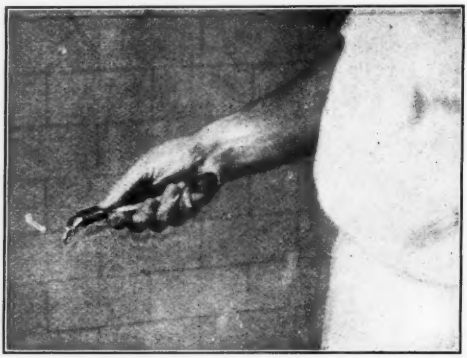


Fig. 12.

With the lower tooth forceps where the handles and beaks form an angle, the handle must raise sufficiently high, that the beaks become a continuation of the roots (on that the long axis of the beaks runs as nearly parallel to the long axis of the tooth as possible); not observing this, accounts for many failures.

Lower Molar forceps should be applied that the pointed portion of the blades strikes the bifurcation of the roots as nearly as possible.

The curved blades of the lower Molar forceps should enclose the bifurcation of the root and unless there exists an ankylosis, the roots are badly curved on diverging; there is little chance for failure if the tooth is properly luxated. (Fig. 13.)

The application of sudden force by jerky movements or pulling will snap off the crown or tire the operator rapidly, cause a sore hand and fail to dislodge the tooth.

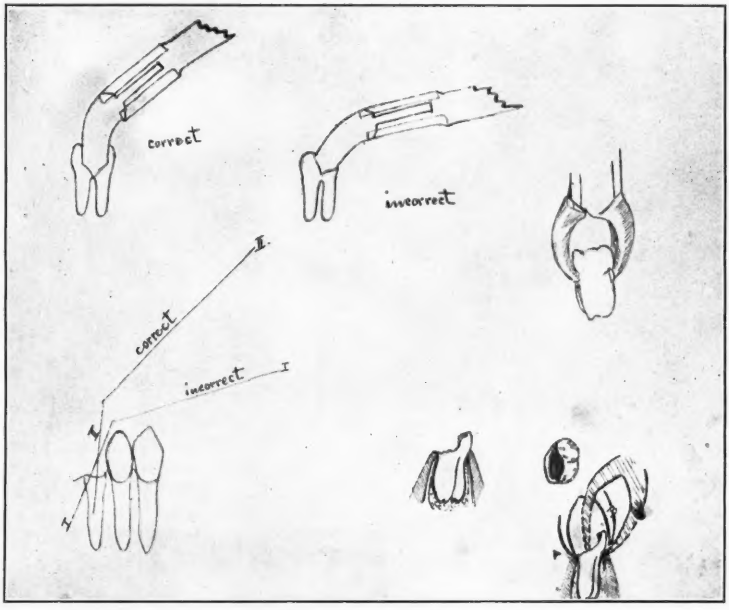


Fig. 13.—Forceps correctly and incorrectly applied to lower teeth.

Fig. 14.—Shows the application of Bayonet forceps to Upper Anterior teeth; note position of fingers of left hand protecting soft parts.

Fig. 15.—Shows the application of forceps to Right Upper Molar; note left index and second fingers protecting cheek.

Fig. 16.—Shows application of forceps to Left Upper Third Molar; note left thumb and index finger protecting soft parts.

Fig. 17.—Shows application of forceps to Lower Anterior teeth; note left thumb supporting mandible, and index and second finger protecting soft parts.

Fig. 18.—Shows application of forceps to Left Lower Molar; note direction of beaks, parallel to tooth, fingers of left hand supporting mandible and protecting soft parts.

The teeth in the jaws form an arch of which each tooth is a keystone, excepting the last molars. The extracting force should, therefore, be exerted buccally, *i.e.,* away from the arch, excepting sometimes in Lower Molars. This, however, is no fixed rule, each case being governed by individual conditions.

The actual application of the forceps to the teeth is best shown by illustrations 14–19.

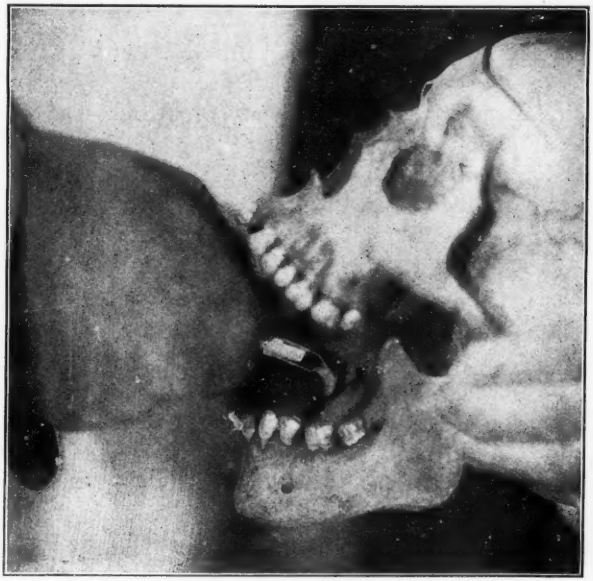


Fig. 19.—Shows application of forceps to Right Lower Molar; note fingers of left hand protecting soft parts.

So, after all, if all points necessary for successful tooth extraction are considered, the operation is not merely pulling, but a complex procedure. To recapitulate one has to bear in mind: —

1. Grasping of the forceps, not tightly but loosely.
2. Correct application of the forcep-beaks to the tooth.
   Long axis of beaks, parallel to long axis of the root.
3. Closing of forceps, not too tightly, join *hand, forceps* and *tooth* into *one.*
4. Correct application of force upward and in, and outward, to break up pericemental fibres and thus loosen the roots in their alveoli

and then continue the in and outward motion, gaining the direction of least resistance—then removing the tooth, never losing control over the instrument.

150 East Seventy-fourth Street.

"PERMIT ME TO INTRODUCE TO YOU THE 'G.D.A.'"

By Margarette Gerrish, G.D.A., Kansas City, Mo.

Although we are as yet in our infancy, I think it about time we made our début into the Dental Profession.

In reading the Dental Digest and other worthy dental literature, I am sorry to say, it seems everything else claims enough of your valuable time and attention for you to read and even write about but the G.D.A. Is it a fact that you have really not heard of us? Or are you ashamed of your professional sisters who have the honor to claim, not merely on their own individual or personal account, but by virtue of their Diploma which gives them the degree of Graduate Dental Assistant, the same that your degree makes you Doctor of Dental Surgery?

The M.D. takes great pride and interest in the graduate nurse; why should we not claim the same honors from the dental profession?

Thus, I say, why should we hesitate to introduce ourselves to those who do not know of us and make known our existence? True it is that the profession of Graduate Dental Assistants only came to light four years ago in Kansas City, when a college was founded known as the American College of Dental Assistants. I am proud, indeed, to say the dental profession in other cities realized the necessity of efficient assistants and were soon in correspondence with our worthy President and Secretary in regard to the graduates to be, and the demand was greater than could be supplied from our college. Soon again they were writing for our literature, and colleges of the same nature have been founded in other cities, and the Graduate Dental Assistants are slowly but surely coming to the front, as did the nurse, for are they not to the dentist what the nurse is to the physician?

Now, what we graduates want is the co-operation of every dentist in every city. We want to awaken them, so to speak, and arouse such an interest in them that they will stand back of us, as does the physician the nurse, and see to it that these colleges are kept in exist-

ence. Surely, you who know so well the need of efficient assistants will not permit such a promising and worthy institution to sink into oblivion. The foundation is laid; will you not assist us in building on that foundation?

You may perhaps ask this question: "If these colleges are in existence, that is well and good; what can we do?" The fact that there are not enough of these colleges, and what few there are seem to be lacking in interest, shows that we are not becoming known, and that the people in general must be aroused, as well as the dentist. There must be some one to interest these young ladies to get them to enroll rapidly in these schools so as to prepare themselves to enter upon this new field which promises so much. You who are fighting for oral hygiene in the schools put on a double armor and fight to further the work which is so worthy of the fight.

From some unknown cause our college here in Kansas City ceased to exist; the term of training was only six months, and every moment of the time was interesting.

We are living in a progressive age, where new things are daily coming into life; for the dental operating room there are new devices for making operations pleasanter for the patient as well as to the dentist; even new diseases manifest themselves which require more skill on the part of the dentist and so demand a competent assistant.

As you well know, it is easy to interest young ladies to become medical nurses; can you not conceive some idea to make colleges for dental assistants as interesting to these young ladies as are the hospitals for training nurses to-day?

When the dental profession awakens to the fact that a G.D.A. is as necessary a requisite at the chair as the nurse is at the bedside of a physician's patient, then I am sure we will not need to ask aid to advance this work. It will come unsolicited, and we will no longer be a curiosity to the general public as we are to-day, our neat uniforms being quite different from that of the nurse.

The time is not far distant when patients will not patronize a dental office where a graduate assistant is not in attendance any more than they would a hospital where there were no nurses.

Perhaps you are asking yourself another question, "I do not see how you can be of any more assistance than the average office girl; you only train for six months, and the nurse trains for three years." Have you stopped to consider that the nurse has the whole human anatomy to combat, while the dental assistant has only the oral cavity and the thirty-two teeth therein?

In conclusion, will say I trust every dentist who reads this article

will resolve to do his part and see to it that such an interest and enthusiasm will be aroused that, year by year, scores of competent assistants will step forward, smiling, to receive the diploma which will usher them into a new field of success.

I trust you will recognize this introduction and will extend a hand with the old-fashioned clasp, and say, "Welcome to our profession."

SYSTEMIC EFFECTS OF PYORRHEA ALVEOLARIS

By Alonzo Milton Nodine, D.D.S., New York City

Pyorrhea Alveolaris produces systemic effects as dangerous, as certain and as insidious as its local effects.

Pyorrhea alveolaris may be at one and the same time both the beginning and the end of a vicious circle of disease.

Pyorrhea alveolaris in some instances may be the reflection of a systemic disturbance. But pyorrhea alveolaris, in the vast majority of cases, is the institutor of systemic disturbances. Pyorrhea alveolaris supplies material that breaks down systemic resistance.

The term interstitial gingivitis will be applied to the inflammation of the structures surrounding the teeth whose resistance has not been sufficiently lowered to permit of the production of pus.

And pyorrhea alveolaris will be considered that condition, acute, chronic or sporadic, in which the resistance of the structure surrounding the teeth has been so lowered by irritation or infection as to permit the production of pus.

The essential and ever-present element in pyorrhea alveolaris is pus. This pus is found to contain micro-organisms constant in most all mouths and under almost every condition. Some one of the following named five micro-organisms is always present, and in a great many instances all of them are found.

1. Streptococcus; 2. Staphylococcus; 3. Pneumococcus; 4. Micrococcus Catarrhalis; 5. Bacillus Coli.

These five types or classes of micro-organisms found in pyorrhea alveolaris pus are those engaged both in the local and in the systemic disturbances.

From the local focus of the pyorrhea infection micro-organisms enter the lymph and blood by five routes.

First—From the pyorrhea pockets (1).

Second—From the mucous membrane of the mouth, whose resistance has been broken down (2).

Third—From the tonsils and crypts (3).

Fourth—From the stomach and intestinal tract (4).

Fifth—The infection may be drawn into the bronchi and lungs and finally get into the blood stream.

In addition to the micro-organisms and their toxines, the putrefaction of food débris, accumulating in pyorrhea pockets, produces toxines and ptomaines which may be absorbed locally or distributed to the gastro-intestinal tract. These factors add their influence to create the systemic effects.

In a great many cases the systemic disturbances of pyorrhea alveolaris are due to the accumulated result of absorption of micro-organisms, toxines and food poisons by all five channels.

ARTHRITIS DEFORMANS

One of the principal effects brought about by the absorption of the pathologic products of pyorrhea alveolaris is Arthritis Deformans, or Rheumatoid Arthritis, or, in plain words, a disease producing deformity of the joints.

These deformities are produced in the following manner: From some local focus, such as the mouth or the gastro-intestinal tract, the micro-organisms are absorbed and carried by the blood to the joints. A close network of blood vessels and capillaries is situated under the innermost layer of the synovial membrane, allowing the micro-organisms to pass out into the synovial fluid.

If the micro-organisms are particularly virulent, pus is produced in the joint. The joint becomes distended with the fluid; the ends of the bones are eroded; the cartilages loosened; and the folds of the capsule adhere. This produces in the joint a distortion or perhaps an ankylosis, which may remain after the healing process is completed.

If the micro-organisms are not virulent, the joint becomes swollen with a serous fluid and after a time the fluid may be absorbed, leaving no disfigurement or disability.

That pyorrhea alveolaris is responsible for a considerable number of cases the following facts indicate:

1. The micro-organisms found in the joints of a number of cases are identical with the micro-organisms found in the pyorrhea pockets of the same patient (7).

2. Vaccines, prepared from cultures of micro-organisms taken from the gums and joints, cure both conditions (5).

3. In a certain proportion of cases the extraction of the teeth involved, or the cure of the pyorrhea alveolaris, is sufficient to arrest the diseases and may even bring about a complete recovery of the inflamed joint (6).

4. Of the cases in which an infective foci are found, 25 per cent. have pyorrhea alveolaris (8).

5. Cultures taken from pyorrhea alveolaris pockets, when injected into rabbits, have developed stiff joints in a few days (8).

6. There is another class of cases which is due largely to malassimilation and auto-intoxication. Both of these conditions have in pyorrhea alveolaris a contributor, directly by its pathologic constituents and indirectly by loss of teeth and inability to masticate efficiently (7).

RHEUMATIC FEVER

Pyorrhea alveolaris contributes to another disease, Rheumatic Fever.

For thirty-five years the belief in the germ origin of rheumatic fever has been held by a number of scientific men. Within the last twelve years a great many experiments and observations have been made that satisfy careful bacteriologists that the micro-organism most frequently responsible is a diplostreptococcus (9).

Among the places where this micro-organism is found are the pyorrhea alveolaris pockets—in fact, it is one of the most constant of the germs of pyorrhea alveolaris (9).

The pus manufactured in these pyorrhea alveolaris pockets may be absorbed constantly from the local focus, or discharged into the mouth and absorbed from the mucous membranes of the mouth, the tonsils or stomach and carried by the blood to the heart and joints where these germs produce their effects.

The facts that indicate that pyorrhea alveolaris contributes to the cause of rheumatic fever are:

1. The micro-organisms believed to be chiefly responsible for rheumatic fever are constantly present in the contents of pyorrhea alveolaris pockets (8).

2. The injection of these micro-organisms, taken from the mouth, into rabbits produces, in all particulars, the effects of rheumatic fever in the human subject (9).

3. It has been frequently noticed that the first cleansing of a septic mouth results in an attack of rheumatism—the severity depending upon the amount of injury to the soft parts (8).

4. The tonsils are considered the principal portal of entrance for these micro-organisms, and, further, the tonsils are most easily infected by the discharge of pyorrhea pockets (10).

5. The constant infection from pyorrhea pockets gradually breaks down the resistance of stomach or intestines and absorption takes place by this route (10).

6. The auto-intoxication which contributes to rheumatic fever frequently is due to the constant ingestion of pus from pyorrhea pockets.

7. In those cases of rheumatic fever in which an infecting focus has been found more than 75 per cent. have pyorrhea alveolaris (11).

8. Autogenous vaccines, made from the cultures of the mouth and joints, have cured the pyorrhea and rheumatic fever in the same patient (11).

ENDOCARDITIS

Endocarditis has frequently been traced to pyorrhea alveolaris.

Among the diseases of the internal organs most frequently produced by pyorrhea alveolaris are those of the heart, especially of the valvular structure. These effects result from micro-organisms of various degrees of virulency which have been introduced in small quantities from foci, and by proliferation after prolonged lodgment at a point removed some distance from their port of entrance.

The micro-organisms and toxines such as are found in pyorrhea alveolaris pockets are carried to the heart. Here they irritate the valves, which become swollen and inflamed. The delicate endocardium gives way and little beads of fibrin from the circulating blood deposit on the ulcerated areas to form the pinkish red vegetations of acute endocarditis.

The facts indicating that pyorrhea alveolaris contributes to this condition are the following:

1. The micro-organism found post-mortem in these cases is identical with that found in the mouth of the same patient (9).

2. The injection of the micro-organisms found in the pus of pyorrhea alveolaris pockets, into rabbits, produces the same heart lesions in all essential particulars as are found in the human subject (9).

3. Seventy-five per cent. of the cases of rheumatic fever and rheumatoid arthritis develop heart disease. Cases of heart disease which are due to pyorrhea alveolaris are produced by the micro-organisms or toxines found in pyorrhea pockets and to the food poisons, the result of the effects of pyorrhea alveolaris.

4. The faucial tonsils, which are the source of many cases of endo-

carditis, receive their infection, in many instances, from pyorrhea pockets (4).

5. The treatment and cure of pyorrheal conditions, in most instances, produces a cure or an improvement in the heart conditions (13).

FIBROSIS

Fibrosis is the excessive reproduction of the cellular elements of the fibrous interstitial tissue of the internal organs and other parts of the body. This over-production of fibrous tissue is due, in most instances, to the stimulation of some irritant acting for an extended period.

When the gastro-intestinal tract is subjected to chronic inflammatory disturbances for a long time, the lining membrane becomes so weakened that micro-organisms easily pass through the walls of the stomach and intestines. While such micro-organisms undergo normal and inevitable destruction by the cells of the lymph glands, the liver, the kidneys, and other organs, nevertheless the excessive action of the cells and the effect on them of the toxines liberated in the process of the destruction of the micro-organisms, may eventually lead to grave changes in the cells and organs of which they are a part—changes of a chronic nature. Such a process as this, perhaps, is the explanation of many of the forms of chronic fibrosis which occurs so insidiously in various organs. It is in this way that the constant ingestion of the pus of pyorrhea alveolaris becomes responsible for these conditions.

Among the changes that fibrosis produces are cirrhosis of the liver, arteriosclerosis and hepatic cirrhosis.

The following facts indicate that pyorrhea alveolaris contributes to the cause of these conditions:

1. Cirrhosis of the liver and kidney can be produced by giving bacterial toxines by the mouth (12).

2. Proliferation of the interstitial connective tissue of the liver can be produced by the introduction of certain germs into the intestines (12).

3. Bacteria of a suppurative type can, if sufficiently attenuated, lead to slow proliferative changes in the liver, since glandular connective tissue has had its vitality lowered by alcohol, bacterial toxines, and certain organic fatty acids (12).

4. The common clinical observation of the coincidence of cirrhosis of the liver, *pyorrhea alveolaris,* hearty eating and the drinking of alcoholic beverages (12).

5. Micro-organisms have been recovered from healthy organs by cultivation. This indicates that micro-organisms are present in all parts of the healthy human body. These are successfully thwarted until such time as the resistance is broken down by fatigue, disease, malnutrition, or the constant and increasing doses of infection. This further indicates that pyorrhea alveolaris, in the otherwise absolutely healthy persons, is a menace to the well-being of the individual. Constant doses of pyorrhea infection will in time affect the cellular structures and functional activity of most organs of the body (12).

6. Non-pathogenic pigmented micro-organisms given in food to healthy animals may be regained by cultures taken from internal organs without there being the slightest evidence of any lesion of the elementary tract. This indicates how easily micro-organisms may pass through a perfectly intact intestinal wall into the recesses of important organs.

ANÆMIA

Anæmia is a condition due to the reduction and alteration of the various constituents of the blood—a reduction in the number and form of the red blood cells and decrease in the alkalinity and coagulability.

Clinical facts that indicate this contribution of pyorrhea are:

1. The absorption of septic products of pyorrhea alveolaris pockets produces changes in the composition of the blood similar to the effects produced by other pus producing foci (16).

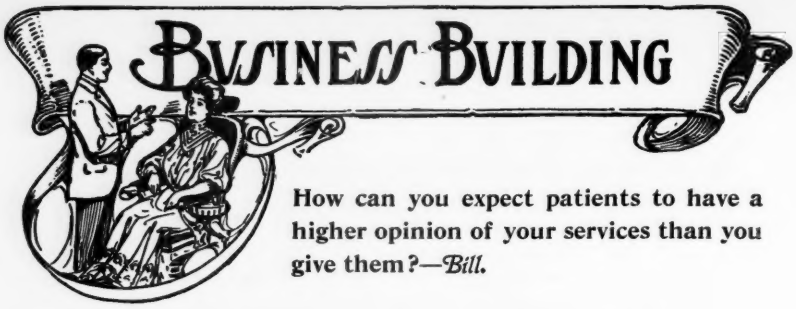
2. The existence of any chronic suppurating condition either of the mouth or any other organ results in the loss of a highly valuable material—albumin. This drain upon the blood effects a diminution of the most important blood making organ—bone marrow—which in its efforts to compensate for the drain of the pathologic process degenerates (17).

3. The absorption into the blood of small constant doses of streptococcal and staphylococcal infections—such as *pyorrhea alvéolaris*—extending over any considerable period—produces septic anæmia.

4. The ingestion of constant doses of pus from pyorrhea pockets produces disorganization of the digestive function of the stomach so that the blood elements necessary for the proper sustenance of the body are improperly prepared with resulting auto-intoxication, malnutrition and anæmia (12, 16).

5. The eradication of the pus producing conditions of pyorrhea results in an abatement and gradual restoration of normal blood conditions (15, 16, 27).

(This article is expected to be concluded in the October number.)



How can you expect patients to have a higher opinion of your services than you give them?—*Bill.*

WILL YOU HELP DETERMINE HOW PROFITABLE DENTISTRY IS?

For nearly two years past I have been working on the task of finding out how much net profits dentists really make. I have lectured in New York, Massachusetts, Pennsylvania, Georgia, Kentucky and Ohio on this subject, and have gained what information I could from dentists in the several communities. I have reports from about 150 practices as to costs and receipts.

It is my intention to write for this magazine a series of articles on what I have learned in the course of this work and the application of these facts to practices in general. I feel sure they are of interest and will be profitable to many.

But as I have gotten farther into this work, I realize that the number of practices from which I can make reports is far too small to give the articles the value they should have. I am, therefore, printing here copies of the form on which the reports at hand are made out. And I want to ask your aid.

HOW YOU CAN HELP

You will see that I have numbered the items on the two forms (pages 513 and 514). This has been done merely to facilitate the sending of information. Will you make a copy of these forms, merely putting down the numbers instead of writing out the whole line and filling in the amount opposite each and send me? Your report will be treated in strict confidence, and no dentist save myself will know anything about it. So you need not fear revealing anything to others. I shall combine it with other reports and give out information on the mass, or parts of the mass. If I can get 100 reports from Massachusetts, every Massachusetts dentist who reads will know what it costs those dentists to conduct practice, and what the percentage of their gross intake is profit. Numerous reports from other states will benefit in like manner and we shall all know better how profitable dentistry is.

ESTIMATING OFFICE COSTS

1.	College costs (cash expended).....	$ 1000	
2.	Three years time at $500.....	1500	
		$ 2500	$.....

Reception Room Investment

3.	Repairs or Installation (walls, etc.)..	$.....	
4.	Floor covering	.....	
5.	Table	.....	
6.	Chairs	.....	
7.	Pictures	.....	
8.	Incidentals	.....	
		$.....	$.....

Operating Room Costs

9.	Installation (walls, etc.)	$.....	
10.	Floor covering	.....	
11.	Chair and cuspidor	.....	
12.	Bracket table	.....	
13.	Cabinets, tables, etc.	.....	
14.	Engine	.....	
15.	Switchboard and attachments.....	.....	
16.	Appliances and instruments.....	.....	
17.	Linen	.....	
18.	Incidentals	.....	
		$.....	$.....

Laboratory Investment

19.	Installation (fitting up room).....	.....	
20.	Benches, sinks, etc.....	.....	
21.	Compressed air	.....	
22.	Lathe	.....	
23.	Casting appliances	.....	
24.	Soldering appliances	.....	
25.	Articulators, Trays, etc.....	.....	
26.	All other appliances and tools.....	.....	
		$.....	$.....

Operating Costs

27.	Depreciation (10% of office investment) (Don't answer this)	$.....	
28.	Refunding investment (5% annually).	.....	
29.	Rent	.....	
30.	Heat	.....	
31.	Light	.....	
32.	Phone	.....	
33.	Laundry	.....	
34.	Assistant	.....	
35.	Charity	.....	
36.	Publicity (cards, tickets, etc.).....	.....	
37.	Supplies other than upkeep and precious metals	.....	
38.	Precious metals	.....	
		$.....	$.....

SUMMARY

39.	Total practice annually.....	$.....	
40.	Operating costs	.....	
41.	Difference available for salary.....	$.....	

I shall be glad to have information from other parts of the world as well as from our own states and Canada.

HOW THIS WILL BENEFIT THE PROFESSION AS A WHOLE

It will give us necessary information which is not available now. It is sometimes said that our fees are too high. I know that in many offices they are too low. We can determine this almost beyond question for the offices that reply.

It is said that attention to the business side of practice degrades the profession and lowers the quality of work. I claim that as the dentist receives known profits his work improves in quality and he becomes a better dentist.

There are coming into our ranks yearly a considerable number of graduates almost wholly without business training. Some of these, who possess the idea that only low prices will attract attention, disrupt practice in communities where they settle. Many others drift into forms of practice getting which cannot be approved. Even the better informed young men are often years longer in learning to make money than is necessary. If we, as a profession, have right ideas concerning the conduct of practice, those ideas will gradually reach the young graduate. And he will enter the profession fitted to more quickly and easily take a proper position. In fact, some dental colleges are beginning to give business lectures to the senior classes.

The determination of proper fees will establish us on an intelligent basis with the public. I pay the eye man five dollars for a prescription for glasses and respect him accordingly. I pay the throat man $50 for taking out my boy's tonsils, and forever after I guard that boy and all the rest of the family against colds and exposures and other causes of adenoids and enlarged tonsils. And I view the removal of adenoids and tonsils as an operation and respect the operator. I pay a specialist $50 to look at a mastoid and say that it is time to operate, and another man $150 to open the process and drain the cells, and another man $25 to give the anæsthetic. And I respect each of them. But I can go into many a dental office and have an abscess tooth extracted for fifty cents. And I think of the man who does it at that fee much as I think of the five and ten cent store—a handy place to get tacks and tinware. I can have amalgam fillings put in for fifty cents each or forty cents or even a quarter. And I value them and the teeth that hold them at fifty cents or a quarter each or one-tenth as much as a slight irritation of my eyelids.

I do not mean that fees shall be exorbitant. Far from it. I am opposed to exorbitant fees. I want them to be fair to all concerned—to the patient and also to the dentist and to his wife and children, who, in many cases, have paid the portion of the bill the patient didn't pay.

The family paid it by going without things to which they were entitled and which the office income did not provide.

HOW THE INFORMATION WILL BENEFIT INDIVIDUAL DENTISTS

The longer I study along this line the more firmly I am convinced that you cannot intelligently talk fees until you know what it costs to conduct the practice, per working hour, in addition to the cost of the precious metals entering into certain cases. You cannot say whether or not a certain fee is profitable until you have this other information.

Recently, at a dental dinner, I showed to prominent dentists at the table several inlays, together with the amalgam dies of the teeth into which the inlays were set. I asked them what they thought the proper fees were for such cases in the tooth conditions I described in detail. They gave me estimates of from $10 to $15 each for the inlays. I showed them the time sheets for each step of each inlay, and showed that on the basis of $6 per hour for a fee and the cost of the gold, the cost of one inlay was $27, of another $37, and of a third $42. Any one of these men, maintaining a fine office in a great city, admitted that he would have been very glad to accept any one of these inlays at a fee of $25. After studying the time sheets, they admitted that they should have lost money on operations which they regarded as distinctly profitable.

This state of affairs is so common in the profession as to be the source of much loss to us. And it finally leads to loss to the patient, because our quality of work drops to fit the fees we get. Of course not many patients can pay $42 for an inlay. But if it would cost you half that much or one-fourth that much to restore that tooth, you should know it before you accept a fee at less than cost.

I might multiply such instances, but it is unnecessary. I say to you as plainly as I can that you cannot make known profits until you have known costs. And you cannot know costs until you have inventoried all the costs of conducting your office and divided the total by a certain number of hours. That is your hour cost. It must be your basis of computing charges.

Just as business men benefit by comparing costs with other producers in the same line, so you can benefit by comparing your costs with other dentists in the same town or city or state. You may have overlooked items of expense which are sapping away your profits, so that you cannot make a profit from a reasonable annual cash intake. Your costs should not be much higher than that of other dentists similarly situated. You can get information from others only by giving information to them.

WHY YOU SHOULD HELP GATHER THIS INFORMATION

Because it can come from no other source than the dentists themselves. No one else has it. So far as I know, no great amount of it has been collected.

My special work as editor of this magazine enables me to act as a clearing house for such information, to hold it confidential, to assort it into classes, to draw certain intelligent conclusions from it, and to publish those conclusions where they can be of benefit to thousands of dentists.

Hardly a day passes that I do not receive a letter from some dentist telling in greater or less detail how this magazine has benefited him, how he is improving his financial condition and also his standard of work, how he is educating the children with less financial strain than ever before, or that he is giving them an education he could not otherwise, that he is taking a vacation or a post-graduate course, or buying a home or something of that sort. Many letters express appreciation of this magazine's efforts in their behalf.

Now I want to appeal to all such men, and any others who feel that way, to help the work along. You cannot do anything for me personally. For my own personal sake, I don't need this information. You cannot pay me for anything the magazine may do. I'm happy in the thought that these efforts aid men whom I don't know, though I should like to, and that other lives are richer and happier because of the work that goes into this magazine.

I say you can't pay me in cash for any benefit you may receive, but you can pay for it in the way each of us ought to be willing to pay for benefits received, that is, by benefiting someone else. You can pay by taking the time to make this analysis of your own costs and by sending it to me to benefit others. You can pass the good work along. And you may regard the time and trouble you take as a little payment in the great debt we all owe to the men who have toiled and sacrificed and made dentistry what it is. You can help yourself by helping others, like the man who, in his efforts to save a companion from freezing, worked himself back to warmth and life.

WHY SUCH APPEALS MEET LIMITED RESPONSE

Ordinarily few readers respond to any appeal for aid; they put it off till to-morrow and forget to do it. Wherever I go, men say, "I meant to send you that information, but I forgot. I'll send it when I get home." They put it off again and I never get it. And I need it for someone else's sake.

I believe the readers of THE DIGEST are among the broadest-minded and most public-spirited of the profession. But when an appeal of this sort to the 15,000 readers brings only 100 or 200 replies, it shows that the subject is not interesting, or that men put off answering and forget.

If you are interested in the welfare of your own profession, if you want to see it stand where it should in public esteem, if you want our younger members properly trained to enter practice, if you care enough for the welfare of your own family to take pains in their behalf, do not put off the reply to this request. Make a little sacrifice for the sake of others, as many another has made for you.

All the work this magazine has done along this line, all the articles I have written and the lectures I have given, lead up to this point, that we must know what dental work costs the dentist. If you will give me the information I want, I am sure the results will amply repay you.

Please do it now!

GEORGE WOOD CLAPP.

THE DENTIST AND HIS PATIENT

BY I. JEROME SILVERMAN, D.D.S., SYRACUSE, N. Y.

WE are constantly reading in our dental magazines of the trials and tribulations of some of our younger men in the profession, and some of the older ones, too, as to the whys and wherefores of their not making good in dentistry. Some of the more successful ones tell you to increase your fees, others advertise, but, let me assure you, it all reverts back to the man himself.

If all dentists, beginners and veterans in practice, understood human nature in all its phases, we would not need to consult and advise each other as to the managing of our affairs in practice. As it is, the dentist wakes up after a year or several years of practice to the discovery that, next to the mastery of his professional equipments, a keen insight into the temper and disposition of his patients is indispensable to his success in practice.

In a number of ways the dentist just starting out is liable to lay nets for his own future entanglement. In a few years he discovers that instead of being engaged with new patients, performing new operations—in other words, making money—a large part of his time is given to doing work over again, and usually for nothing.

The subject of fees is a very broad one; you cannot have a fixed schedule of prices for the simple reason that, unfortunately, human nature and circumstances vary accordingly. For instance, Mrs. "B" wishes to have a gold crown made; you know that Mrs. "B" is well to do and can afford and expects to pay a reasonable fee. Should you ask Mrs. "B" six or seven dollars for that crown, immediately a doubt arises in her mind and she questions herself as to whether she is not getting inferior work. Should you ask her ten dollars or more, then there is "Peace on the Potomac," and she is satisfied. She does not understand that, had she paid six or seven dollars, she would have received the same service, but to her the value of the service varies directly with the price.

The following appointment card I have found to help me out considerably:

YOU

HAVE AN APPOINTMENT WITH

DR. I. J. SILVERMAN
DENTIST

AT_____ A. M. P. M.

KNOW YE THAT

Broken appointments prolong the work.

As good dentistry is desired the co-operation of the patient is necessary.

When work is completed it is customary to pay the dentist. He needs it.

This they keep about their person, and usually it brings them to the office at the appointed time.

So it is as I say; if by using good "David Harum" common sense and making those pay that are able to and expect to pay, we can do work for the servant girl at lower fees, giving her the same services, and still strike a happy equilibrium.

It is very essential that your patient should know just what you are going to do for her or him, and in that way avoid any arguments later. The dentist who would avoid misunderstandings and entanglements must be constantly explaining things to his patients. This can be readily done by using diagrams or models explaining the advantages and disadvantages of the different kinds of work and in that way you make a confidant of your patient. He feels that you have his interest at heart, and when you have finished with him and he is satisfied you will have a booster that will bring you all kinds of business.

A pleased patient like this often serves as the nucleus of a large and profitable practice.

The subject of appointments is a very important one with the dentist. Most people are under the impression that the dentist ought to take care of them whenever they see fit to drop him, disregarding any previous appointments that you may have made with them. Unfortunately the younger man who is trying to work up a practice has no remedy for this evil; the older, well-established practitioner charges for broken appointments, and they pay, but should the young man demand it he loses his patient.

Many dentists want their patients to think them good fellows; accommodating, genial, gentle in their ministrations. We should be all of that; but unfortunately some people take advantage of good nature. It is far better to be firm with some people, to make them afraid of you, than to be everlastingly suffering the consequences of not insisting on your rights. Don't let any patient neglect appointments without a little "bawling out" occasionally. Beyond question, it is not a bad idea to show your indignation under some circumstances.

Too many dentists do not know the meaning of the word "tact." This should be their by-word. The dentist should be conscientious, painstaking (literally and otherwise), however small the contract, and irrespective of the patient's station in life. Brother Bill, with his wise teachings, can show you the way, but it is *"you and you"* alone that must blaze your own path through the forest of competition.

All the foregoing may be of little significance to many readers of The Digest. There are many, however, who need to get "wise" to themselves, their methods, and their patients. It is never too late to raise your standard of work, which is your best advertisement. You must creep before you walk, and then later you may ride in automobiles.

Of course this whole matter resolves itself into the question of what is in the "man" the "dentist"—as we all, no doubt, understood in the first place.

Everything comes to those who wait,
And the lazy man waits to greet it;
But success comes on with rapid gait
To the fellow who goes to meet it.

The Dental Summary.

COST AND SELLING PRICE

By John L. Kirby, D.D.S., Holton, Kansas

This is one of the best articles on this subject I have read. Read it through quickly, then again slowly, and then do some figuring on your own costs.

The time thus spent will be the most profitable hours of the year.—Editor.

Business is a game. To get the full measure of enjoyment out of any game we must know the rules governing the same and win a score occasionally. No ball team continually beaten can play as interesting or successful a game as one who wins at times and the oftener they win the greater the enthusiasm, both with fans and players.

"To him that hath it shall be given," "Nothing succeeds like success," "The destruction of the poor is their poverty,"—are axioms whose fundamental truths are based on the facts stated above. The *winner* is the successful man. You must not know the rules, but you must *conquer,* to succeed.

Dentistry is a profession, but the rules of the business game control it and to get the most pleasure, profit and success out of it, study the rules of business and apply them.

Success is a relative term and its conditions must be specified to mean anything. In a dentist, it means to me unimpeachable morals, a keen, wide-awake, active and teachable mental equipment and a *business record* demonstrating that sound business principles are controlling his output and his income.

Fame, notoriety, prestige, popularity, come to a few because of special gifts or the workings of genius, or by chance or by pull, but the well-rounded success comes to the dentist by not only hard work at his chair, at his text-books, at his associations and his clinics, but by a thorough mastery and knowledge of the rules of the business game. Successful business transactions are not by chance, but are obtained by laws as invariable as the laws of physics.

Cost and *selling price,* two factors taken into consideration in almost every business transaction on earth, I would very humbly submit to you to-day and their relation to our commodity services.

There is a universal law of economics that bears upon all business transactions. That law is, that the cost and selling price of a commodity must bear a just and equitable ratio to each other.

For example, *gambling* is forbidden by law—man has found that it is a violation of the above economic rule. Nothing is given in return for the investment except degeneracy. The ratio is all one-sided. The

saloon is not considered on a par with the clothing business. Why? Because its profits are beyond all reason and out of a decent ratio with the cost of its products. Then the result of its products puts a joker in the selling price back on the community.

Usurious rates of interest are illegal. The state finds it necessary to protect the unfortunate borrower from a Shylock as well as to keep the ratio between production and consumption fair and just. The *bankrupt laws* are the crystallization of a demand to help the fellow who had his ratio of cost and selling price reversed and not a demand by the crook to beat his creditors.

Tariff commissions, laws and *political parties* are formed to equalize the ratio between cost and selling price, between producer and consumer.

The following figures and analysis are given to show how the ratio between the cost and selling price of our commodity may be controlled so that it will be just and fair to dentists, to the patient and to the profession as well.

Remember the commodities we sell are services, not materials. The materials must be paid for and must be reckoned with in making a selling price. The items that go into the cost of services, as I see it, are three—*time, overhead charges, materials* and perhaps a fourth, *unusual skill.* I will not discuss the latter, because I do not possess it.

To determine the cost of one single operation, average the expense against a previous number performed, then by using the time consumed, a cost system can be established that will justify the naming of a safe, equitable and business-like selling price on every operation.

The following figures I dug up from my own supply bills, expense accounts and card system. To produce $3,000 worth of business I paid $600 for dental supplies, $800 overhead expenses and gave 1,200 hours of my producing time. Dental supplies mean only those things used while operating and are bought from the supply houses. Overhead is a term used by every factory and mercantile establishment the same way. It means the constant and running charges. In my office it includes light, heat, water, power, taxes, insurance, laundry, office help, medicine, society dues, trip to association, clinics, books and magazines, advertising, business donation, bad accounts, charity, stationery, postage, interest on investment, which means office inventory, college and special courses.

Time—the third factor, is divided into three divisions: Producing hours, non-producing hours and plain office time. Producing hours mean that I am occupied in work that brings an income. Non-producing hours means time I spend at chair, laboratory or technically employed, that directly I get nothing for. Plain office time I utilize

for most anything, from a three-minute snooze to janitor work or buried in deep thought.

In $3,000 worth of work $2,000 was obtained from operations using gold, $1,000 from non-gold operations. Of the $600 for dental supplies, $200 was for gold and $400 for incidentals. The overhead had to be charged to the producing hours only, and as $800 expense was spent in 1,200 hours, my overhead expense per producing hour was about 65 cents. Two-thirds of my $3,000 was obtained from gold operations; then gold operations must absorb two-thirds of my dental supplies, one-third begin for gold any way. Hence for every dollar of gold the operation uses, another dollar is absorbed in incidental supplies. This may not be true in each individual operation, but in the average it will hold true, and because of the average every operation must carry its just share.

The next step is to add the overhead expenses to each operation or estimate it for the operation. If the time consumed is two hours, that means to add two times 65 cents, or $1.30. To apply the third factor, the cost for my own services, to each operation, the time gives me also a basis for estimate. If I work on the same basis as in the production of the $3,000, I am only entitled to add $1.33 per hour, as I only received $1,600 for 1,200 hours' work. So here is my cost: $1.00 for gold, $1.00 for incidentals, two hours' time give $1.30 overhead, and $2.66 operator fee, making a total cost of $5.96 to this operation.

This means nothing to you unless you apply it to some ordinary operation like making a gold crown. Then its force will impress you. I estimate two and one-half hours is a low average for a gold crown, fee $3.32, making a total of $7.32, with only $3.32 your own, out of that amount. I received for forty-five gold crowns $326, an average of $7.25 each, and I always felt kind of good when a gold crown came in, but I did not know the cost.

In a non-gold operation the overhead and operator fee are the bulk of the charge, and I add one-fifth of that amount to cover material. I do this because I spent $200 for dental supplies to obtain $1,000 gross receipts on non-gold operations.

Now my system is based on my own charges and my own business alone. I would be glad to have additional data to work upon. However, I feel that my cost items are fundamental, that the overhead can only be applied through the producing hours.

This is not original with me, as the application of overhead expenses to production, I gathered from factory men in other lines of business, but it applies to dentistry just the same.

The keeping of time against every patient and against every operation is the only sure way of knowing how to let each patient or each operation share its just part of the expense, and because I know of no other way of devising a system I divide all production into gold operations and non-gold operations.

The making of estimates in advance of an operation is easy if you have kept a record of past operations, whether you won or lost on the past ones. When I finish a patient I collect all the time against that patient, charging her $2.00 per hour for my own service, 65 cents per hour for overhead, and for the material also used and compare that with the amount I have told her previously for the amount she has paid. In other words, I figure the cost of the operation and if I find I am loser I am better prepared to name a selling price next time.

It is absolutely folly to add up your year's expense, compare that with your gross receipts and say the difference is the profit or loss, when you can name a selling price on each operation based on a cost knowledge of that operation. Let me repeat. The cost of a dental operation is composed of three parts: the operator's fee, the overhead, the material, and if you think the operator's fee is ninety per cent. of the gross and you are charging popular prices for your service you had better guess again.

Most of us are working for a fee about like a skilled plumber or perhaps a music teacher and try to live on a scale with a banker or money lender. You cannot name an intelligent fee till you know the cost, and the only way to know the cost is to know the items that make up the cost.

The selling price—a bank that pays three per cent. for deposits, loans them for eight per cent. A life insurance company takes your risk on an average cost. It cannot tell how long you will live, but it can tell on an average of many whether it can afford to carry your risk or not. The merchant sells his produce on a basis of cost and marks each piece accordingly. If the cost goes up he re-marks each piece and is quick to let his customer know of the raise.

My cost and your cost for supplies and overhead is greater than ten years ago. How's the selling price? Just the same. I am more proficient than ten years ago. I am entitled to better service fees. An experienced salesman or stenographer gets better pay than those inexperienced. Services are the commodities dentists have to sell, and yet dentists over the country are naming a *selling price every day when they cannot tell the cost to save their souls.* When their overhead is jumping up like a Jack-in-the-box and their dental supplies are doubling in cost year after year. In the latest dental catalog are hundreds of

things not listed in the catalog of ten years back and of the things that are listed very few are lower and many have increased from ten to one hundred per cent.

Ten years ago you could run an office without modern equipment. Try it now beside a man with modern equipment and you will have to have more than the cost of your operation to keep you going. The meanest competitor to-day is not the advertiser or the quack, but the square, honest dentist of ability who is too ignorant or lazy or bull-headed to find his cost of production and thereby makes his selling price arbitrary, based on a guess and a ten-year-old cost estimate; whose wife's money makes up his deficit, providing he has a rich wife, or if not, the income from his farms and investments made on profits of years gone by.

A modern dairyman keeps tab of each cow. He does not let one unproductive cow eat the head off a profit-making cow. He butchers her, sells her or makes her productive if he can.

I plead for a more intelligent selling price. Segregate each class of operations and see what they produce, then count the time producing them and see whether you are a professional man or a street sweeper, as far as service fee goes. Quit feeling so sorry for the patient's resources; he don't feel sorry for yours. Make him deny himself, not you and yours. The merchant treats them all alike. They buy pianos, autos and velvet shoes. Do you? The estimate says five per cent. of Kansas dentists own their own homes. You are giving your health, your eyesight, your nerves, your enthusiasm, your life, just like the clothing man used to throw in a pair of suspenders when you bought a suit.

What's the selling price? It's up to you to name; the patient never adds to your estimate. He often says it's all profit and some fellows half believe him. He is a liar, and if you believe him you are a fool. When you name the selling price, be sure you get the ratio between it and the cost just and business-like.

If your neighbor is underselling you he is probably ignorant of his cost. Educate him after you've found out for yourself your own cost. Nobody wants to sell at loss. He may be selling inferior goods. If he is, then study salesmanship and never sell your commodity by its price, but by its value.

A large per cent. of the public think a dentist shuts his eyes and charges, and he often does. I have found only a few dentists yet, who could tell me what it cost them to produce a dollar. I have had various answers. One fellow said he always charged enough—he guessed. Another said it seemed as if he ought to be making something—he was

guessing. Another said nineteen per cent. I feel morally certain he doesn't know.

I doubt if any dentist ever made a profit above his cost. Some have received better service fees than others. Profit makes a man rich. Dentists are never rich from their profits.

The fundamental laws of business prevailing in other occupations should prevail in dentistry. Almost every commodity that is sold to-day has increased in selling price or decreased in quality, all on account of an increase in cost. I'm ready to compete any day with a man that knows his cost on every operation and will not make one class of operation carry another class.

For example—I segregated my operations and found what each class of operations brought me in the gross, and the average for each operation. Last year gold fillings averaged me $3.32 each; treatments, $1.68; gold inlays, $4.06, etc. I found some operations not paying service fees, to say nothing of material and overhead. Now I keep time on all operations and next year I will be able to know the time factor. Also I keep tab of gold used on all inlays, bridges and crowns. So if next year my average on gold inlays is $10.00, I'll have the time and gold to know how much I lost on the jobs or how much I gained.

Since keeping a record of time, I find one month I averaged two hours and forty minutes per day producing hours. Another month five hours and four minutes producing hours per day. Another about three hours per day, etc. I find my cash receipts will vary as my producing hours.

When my month is up and I have 100 producing hours to my credit, I feel that my own salary for that month has been $200 and all expenses are cared for besides. If my producing hours are only fifty, then I know I have $100 clear for myself and expenses all paid. I hope some day to be nerved to the point of making a profit besides expense and personal fee. If I do, I'm going to spend it all back in dentistry on special preparations, new equipment and more enthusiasm. —*The Western Dental Journal.*

It takes a great deal of boldness, mixed with a vast deal of caution, to acquire a great fortune; and then it takes ten times as much wit to keep it after you have got it as it took to make it.—Mayer A. Rothschild.

EXPERIENCES

SHOULD HE STAY AND "FIGHT IT OUT?"

JULY 10, 1913.

Editor DENTAL DIGEST:

I HAVE been graduated from dental college two years, and have been practising for myself one year in a city of 45,000, with surrounding towns from which to draw. There are twenty-five dentists in our town, and we are fifteen miles from a city of the first class.

I have, from a business point of view, one of the best locations in town, but have two dentists next door to me who have been here years before.

The man from whom I bought the office always had a sample case at his door. He had only been here two years, and had ten years' experience in dentistry.

His year's income averaged $3,200, while during my first year I collected only $1,900. This year, however, my monthly average is decreasing by $12 these first three months of my second year. Would you advise me to look for a smaller town or fight it out here?

Sincerely,

R. K. B.

P. S.—Think Experience column in DIGEST fine for young dentists to profit by.

JULY 19, 1913.

DR. R. K. B.

DEAR DOCTOR: Your question whether it is advisable for you to stay where you are and fight out the matter of practice building or move to a smaller place, is very difficult to answer, because I do not know you personally and have no knowledge of your town. In other words, I do not know whether you are personally suited to the clientèle among whom you are located or not, but it seems to me that in a city of 45,000 there must be all kinds of people, and there must be enough of the class to whom you appeal naturally, so that you should be able to build a clientèle, provided your methods are right.

While I am unable to advise you as to whether you should continue in your present location or move to a smaller place, I think the difficulties would not be much less in a small place than where you are, and that the first step for you to take is to make a careful examination of yourself personally and of your office as to neatness, cleanliness,

attractiveness, etc., and as to your manner with patients, whether you are using that manner which is most likely to attract and hold, or whether you are abrupt, indifferent, repellent or hard in your dealings with them.

I may wound your feelings a little by suggesting that you give examination to your personal appearance, but the question is entirely too important to be withheld merely because of personal feelings. I have seen so many dentists repel intelligent patients by carelessness in personal affairs, by uncleanliness of hands, nails, unpolished shoes, spotted clothes, worn-out or soiled neckties, and by evidences of carelessness in the cleanliness of the office, such as are evidenced by the disorder of papers and books, the accumulation of dust in corners though not likely to be seen, the use of tobacco and its odor about the person, and things of this sort, that I attach very great importance to them.

In suggesting that you analyze the essentials of your conduct toward patients, I do not mean that you should be in the least hypocritical or dishonest, but you should recognize that people who come into a dental office usually come with some hesitation or fear, and with extremely limited conceptions of what dentists can do for them, and your manner should be such as to conciliate, to soothe, to educate, and convince and lead them to decision and action.

If, upon careful examination of all these essentials, you find them above reproach, I think that you should stick it out where you are until satisfied that there is no opening there for you. I do not think you need to be concerned over the loss of $12 per month so far this year, because we are all experiencing business depression. Some of my dental friends who are ordinarily busy at this season of the year now have so little to do that they could better spend their time fishing. In fact, we are not facing a business revival at the present time, and your practice is very likely to suffer, together with other practices, through this period.

I don't know what policy you have adopted concerning fees, as to whether they are high or low, whether you are taking sufficient pains with the operations to justify in the minds of your patients a belief in your unusual skill and care, and what means you are taking for collections of your accounts, but I think that if I were in your place, I should put my personal feelings out of the matter and examine myself, my manner and my office, and my business and professional methods, with the same impartial mind I should use in the case of another person. You may find something which keeps you from attracting more patients. I know of one man who ruined a fine practice by the mere habit of wriggling his nose while he talked to people. Another

one snuffed frequently. Another used tobacco until the odor about his person and clothes was repellent. Others have ruined their prospects of advancement by ill-kept hands, soiled linen, and by inattention to personal details, so that none of these things should be too small for your attention.

Yours respectfully,
GEORGE WOOD CLAPP.

AN ODD CASE

NEW YORK, AUGUST 16, 1913.

Editor DENTAL DIGEST:

M—— B——, a maid in the employ of a patient was sent to me for treatment.

On examination I found a full set of deciduous teeth, all of which were in a good state of preservation but of very little use, because of the large spaces between them. On questioning her, she stated that in early childhood she had been seriously ill, but the nature of the disease she was unable to remember. The disease most likely destroyed the dental organ in its process of growth.

She is a brunette of rather sanguine temperament, 21 years of age, with an appearance about the lips of a person of 80 years.

As these deciduous teeth were incompetent of performing their function of mastication they were extracted. The roots showed very little absorption, although very small in size.

The gums were allowed to heal thoroughly and an upper and lower denture were substituted, restoring the lost contour of the face and lips.

"A. J. J.," D.D.S.

JULY 13, 1913.

Editor DENTAL DIGEST:

IN reply to letter from "Sigourney," page 393, July number, it occurs to me that the lady who specified that her dentures should be of "Russian Iron," misunderstood her former dentist. He probably recommended a "Roscinian Lining."

Yours very truly,
T. L.

PRACTICAL HINTS

[This department is in charge of Dr. V. C. Smedley, 604 California Bldg., Denver, Colo. To avoid unnecessary delay, Hints, Questions and Answers should be sent direct to him.]*

STERILIZING INSTRUMENTS.—For sterilizing burs, broaches and other small instruments, I use alcohol in a glass-stoppered, wide-mouthed jar, such as the Buckley pastes are put up in. The large opening permits easy removal of instruments.—K. K. CROSS, D.D.S.

A CONVENIENT METHOD OF HOLLOWING WAX PATTERNS.—Take a root-canal drier or any instrument of similar design, wrap some cotton around the point in the same manner as would be done on a smooth broach. Heat the bulb and hold the cotton against the wax and it will absorb the wax wherever it touches.—H. M. STETSON, D.D.S., EAST WEYMOUTH, MASS.

EFFECTIVE MANNER OF REMOVING GOLD CROWNS.—Dr. J. S. Donaldson, Denver, at the Colorado State Dental Association Meeting, June 20, 1913, showed a very simple but effective manner of removing gold crowns. A small round hole is bored just under the cusp, extending on a horizontal plane to a point beneath the central area of the cusp, into which a broken instrument that has been ground to a gradual taper is inserted; the handle being used as a lever, to break the cement.

PLATINUM TUBES FOR FORMING PIN HOLES IN SOLDERING OR CASTING.—Dr. J. H. Solecki, Topeka, Kans., in clinic at National Dental Association Meeting in Kansas City, suggests the use of small platinum tubes instead of carbon rods for forming pin holes in soldering or casting. The tubes are easily and quickly made of thin platinum to fit loosely the pins as desired. When case is finished the pin holes are open clean instead of filled with hard dirty carbon to be ground out.

ARTIFICIAL STONE FOR MODELS FOR VULCANITE WORK.—Dr. J. H. Prothero, Chicago, Ill., in clinic at National Association Meeting, Kansas City, suggests the following for an artificial stone for models for vulcanite work. Powdered commercial calcined oxide of mag-

*In order to make this department as live, entertaining and helpful as possible, questions and answers, as well as hints of a practical nature, are solicited.

nesium and a super-saturated solution of chloride of magnesia. The powder should be added gradually to enough of the liquid in plaster bowl to make a good model, thoroughly stirring and spatulating to a consistency considerably stiffer than plaster as ordinarily used. A little should then be placed at a high part of the impression, and the same jarred gently until the surface is evenly covered; then the model is built up to the size and shape as near as possible the size that will be required for flasking, as it does not cut easily when hard.

Three Useful Hints.—For sensitiveness at the necks of teeth use a saturated solution of carbonate of potassium in glycerine. It counteracts the ferments.

A saturated solution of camphor gum in phenol is almost a specific in all pains of extraction.

For sterilizing the hands use common ground mustard in conjunction with liquid soap. It is a good germicide, is easily rinsed off, and has a faint not unpleasant odor.—J. J. Dudley, D.D.S., Nueva Gerona, Isle of Pines, Cuba.

A Time Saver.—In preparing cavities for gold inlays where you have just a slight under-cut that would keep your wax pattern from coming away readily, don't take time to fill it with cement, but pack a small pledget of cotton in it. Your pattern will come away easy and your under-cut is filled when you cement your inlay.—W. A. Griffis, D.D.S., Coleman, Texas.

(I think good temporary stopping is better than either cement or cotton for this purpose. I think it an advantage in retention to have the under-cut in the cavity filled with the same mix of cement as holds the inlay. The gutta percha, while possibly a little more trouble than the cotton to place where required, is no trouble to remove for cementation, and is certainly more apt to stay put when wax is forced into the cavity for model.—V. C. Smedley, D.D.S., Denver, Colo.)

Porcelain Crowns, Temporary.—In the "American Dental Clinic," now on its rounds of the dental societies, Dr. C. M. Hausor, of Portland, Oregon, has contributed a device that has a field of usefulness—a temporary crown or doweled tooth. While the device is not at all new, it is one of the many good things that seem to have been lost sight of, and has been reinvented. It consists of a porcelain tooth soldered or riveted to a T-shaped piece of metal (silver or German silver) if the tooth is cross pin, or a straight piece of metal for a straight pin tooth, the free end reduced so as to readily pass into an enlarged pulp canal. The doctor suggests that a stock may be kept on hand ready for

emergencies. They are secured to the root with temporary stopping, or if the root opening is large, with cotton and sandarac varnish, and are intended for use after the root is prepared, so as to fill the gap while the permanent fixture is in process of manufacture. The metal stem may be bent to bring the tooth into proper position. They may be repeatedly used, if need be, as they can be readily and effectively sterilized. They are useful also to retain a mass of temporary stopping to press the gum from the root. They are so readily made that it is well to keep a few on hand. It will please a patient who calls to have you crown a root, the tooth having broken off unexpectedly, if after doing the preliminary work on the root, you can at once fill the gap with a temporary tooth, and keep it filled until the permanent appliance is ready for insertion.—W. H. T., *Dental Brief.*

Question.—Will you kindly let me know the ingredients and proportions to use in a dental poultice to be used on the gum to draw an abscess to the gum from a tooth. I understand that capsicum, flaxseed, pepper and other things should be used. Will you let me know a good working formula.—Thos. W. Weed, D.D.S., New York City.

Answer.—It is my understanding that the effective agent in a poultice to draw an abscess to a head is heat; it has been my practice to recommend the repeated application of a roasted raisin. Some recommend the drawing effect of cupping; others the immediate use of lance and bur, penetrating the gums and process to the seat of infection. I know of no "working formula," but I will gladly publish your question, and perhaps some of our readers can help us out.—V. C. Smedley, D.D.S., Denver, Colo.

The Diatoric Tooth in Bridgework.—The use of diatoric teeth in bridgework, each tooth in an accurately fitting gold cup, the cups soldered together at the proximal surfaces with a piece of gold plate from pin to pin across the lingual aspect, the whole overflowed with solder, gives a maximum degree of strength with minimum display of gold and an occlusion wellnigh perfect.—R. M. Sanger, D.D.S., *Items of Interest.*

THE RELIEF OF NASAL OBSTRUCTION BY ORTHODONTIA—A PLEA FOR EARLY RECOGNITION AND CORRECTION OF FAULTY MAXILLARY DEVELOPMENT*

By W. H. Haskin, M.D., New York City

As a member of the faculty at the College of Dental and Oral Surgery, in this city, I became very much interested in the many diseases and irregularities of the alveolar processes. Through my former students I have seen a rather unusual and interesting class of cases and have become more and more interested in the results of orthodontia. I am firmly convinced of the great benefits to be obtained in suitable cases of nasal obstruction by proper orthodontic measures, and feel that this work will eventually, of necessity, be added to the equipment of the rhinologist. The question of nasal obstruction and its results is so far-reaching and touches so many branches of our profession that it is impossible to give in detail all the theories as to causation, effect, and treatment in any one paper. Of late years attention is being drawn more and more to the influence of the teeth upon the development of the face. It is well to remember that heredity plays a very important rôle in the shape of the face; that at birth the jaws contain fifty-two root germs, twenty deciduous and thirty-two permanent, and that these bones must develop normally if these teeth are to erupt properly. We know all septal deviations do not cause obstruction; that the eruption of the teeth is not the sole cause of deviations. We have all seen cases in which the great need is for an actual increase of nasal space, which cannot be obtained by any operation upon the septum alone, but requires the removal of part of the turbinate body also. The writer has obtained relief in several cases of this class by aid of orthodontic measures and will report six of these. There is a great diversity of opinion among the dentists as to what does actually take place in the movement of teeth, but the results are what we need, and as they do obtain them in a very large number of cases, we should

* Read at the meeting of the Section on Laryngology and Rhinology of the New York Academy of Medicine, March 27, 1912.

recognize the fact and take advantage of their skill whenever possible. The writer presents this paper realizing its shortcomings, but trusting that it may awaken interest and cause further investigation.

I will give the histories of six cases that I have watched for many years.

Case 1.—P. M., ten years old, has been under my care all of his life, the last three years as my stepson. He has always been a mouth-breather and invariably suffered every winter from repeated colds. In 1904 I removed a very large adenoid, but there was little relief to breathing, owing to nasal obstruction caused by bowing of the septum. I wanted to have a separation of the maxillæ done on him for several years, but delayed it because of these repeated colds. In December, 1910, after a very severe and prolonged attack, during which the ethmoids poured out a profuse and continual stream of pus, my associate, Dr. Dwyer, made an autogenous vaccine from pure cultures of the staphylococcus aureus, and treated him with that for about six weeks. Under this treatment relief was very promptly secured, the cough and all the nasal secretion ceased and have never returned to date. The nasal obstruction, however, remained, and in May, 1911, I took him to Dr. E. A. Bogue for consultation. He found that there was a slight narrowing of the arch with some malocclusion resulting. Had there not been marked nasal obstruction, I doubt whether I should have had any widening done. As this septal deviation had always been a source of great anxiety to me during each of his many colds, I decided to try rapid spreading in order to ascertain whether it would have any effect upon his nose. The boy's physical stature is that of the typical mouth-breather, rounded shoulders with protruding shoulder blades, narrow-pointed chest and protruding lower ribs, and general malnutrition. Owing to delay in obtaining the correct spreaders, these were not finally adjusted until two days before our departure for the summer, so that it was necessary for me to make the daily adjustments, following out the very explicit written instructions which were given to me. The total spreading was obtained in two weeks without causing any pain, and could readily be seen by the actual separation of the central incisors. Dr. Bogue took charge upon our return in September. As soon as he secured good occlusion I persuaded him to remove all the apparatus, replacing it with a hard-rubber plate for the upper jaw to hold the separation. I felt that the wires on the labial side of the arches interfered with the muscular action of the lips, and also made it more difficult for the boy to keep his mouth closed, both very important conditions. After two months the occlusion is even better than ever and he has entirely overcome his habit of keeping his mouth

open; he straps his lips together every night of his own accord. His septum has straightened and no longer impinges on the turbinates. This winter has been the best he has ever had. He has grown taller and has gained eight pounds in weight; he has not lost a day from school, and for the first time in his life he has joined with his schoolmates in all their out-of-door play. He no longer suffers with enuresis. I regret that the separation was not done when I first advocated it, as several years ran on during which time there never seemed to be a time that he was well. As he had always been a nervous child, I was afraid that the dental work might aggravate that, but I now know that it would not have done so, and feel that the time lost was very regrettable, as it made the actual separation more difficult, the teeth being in the transitional stage, that is, the deciduous being shed and the permanent not being erupted enough to allow their being used.

Case 2.—M. B., ten years old, has also been watched since birth, being the child of intimate friends, and a constant companion of my boy. She has always been the cause of great anxiety to her parents. In 1905 I removed a large adenoid without bringing about any marked improvement. Dr. Sheppard, of Brooklyn, operated upon her again in 1909, but no improvement followed, and they then moved from Brooklyn to Rye, hoping the open-air life would help her. Having advised them to try rapid spreading, they took her to an orthodontist who told them that the adenoids would have to be removed before any work could be done on the teeth, and they were about to consult another rhinologist in this city when I persuaded the father to take her back to Dr. Sheppard. He assured them that there were no adenoids and agreed that the nasal obstruction was due to bowing of the septum. Dr. Bogue then took her in charge and did the same for her that he did for my boy. On February 12, 1912, I examined her nose and found free nasal breathing and an undoubted straightening of the septum. The effect upon this child has been remarkable. Before, she was dull and apathetic, extremely pale, had very little energy, and although tall, only weighed fifty-nine pounds. Since spreading she has not had a sick day, even with the severe winter; she leads her class in all her studies, she is bright and full of energy, and has gained eight pounds within six months, which is more than she has gained in three years before. This case was also difficult to handle, being in the transitional stage of eruption. There was no marked irregularity of the teeth, other than a narrowing of the arch and some vaulting of the palatal arch.

Case 3.—H. M., twelve years old, was brought to me in March, 1907. He was undersized, pale, backward in school, with frequent

absences on account of sickness. He was a most pronounced mouth-breather, with badly protruding incisors and a very marked malocclusion, with a gothic vaulting of the palate. He had very large tonsils and a large adenoid with great nasal obstruction due to septal deviation. I removed the tonsils and adenoid without relief to the nasal obstruction and then sent him to Dr. Merritt for regulation. I do not know what method was followed in this case, but the results were most beneficial. I had him come to me in February, 1912, and hardly knew the boy. He had grown four inches and was a strong, healthy boy to all appearances. He had not been sick since his teeth were straightened and has been a nose-breather ever since then. He still has a deviation of the premaxillary wing, but the bowing of the septum has disappeared and he has free nasal breathing.

Case 4.—W. M., twelve years old. This boy's mother died at his birth, and he was always a delicate and extremely nervous child, brought up in the lap of luxury. When he was seven years old his tonsils and adenoids were removed, but he remained a pronounced mouth-breather. I watched this child for years, but was not his physician, and so do not know what was done for him up to 1910. He was the most nervous child I had ever known and I felt that he had St. Vitus' Dance. On account of the disfigurement caused by his protruding teeth and wide-open mouth, he was taken to an orthodontist who was most successful. All the excessive nerve irritation has disappeared, the boy has grown taller and is ridiculously fat; he is now never sick. He is a nephew of my wife, and I see him frequently, and feel that his improvement has all come since the regulation of his teeth was begun.

Case 5.—H. M. is now twenty years old, and I have taken care of her since she was two years old, except for a period of seven years, during which time her family resided elsewhere. In 1906 I was called to see her for a severe tonsilitis and was dismayed at the condition of her mouth. She had been two years in the care of a dentist who was regulating her teeth. I had never seen a mouth in such a condition. The gums were in horrible condition with very marked pyorrhea, and the poor girl was on the verge of nervous prostration from the agony she was subjected to twice a week. I felt it my duty to advise another orthodontist. He immediately removed all apparatus, and after thorough cleaning she was quickly relieved of the troubles of the gums; he then adjusted new apparatus and in a short time adjusted the teeth without any distress. She is now a beautiful girl, enjoys splendid health, and is strong enough to stand the whirl of New York society life. This case illustrates how careful one must be in advising that the

orthodontic work be done, unless you can be sure that it is done by one who is qualified. The first man, judging from the malocclusion and the torture inflicted after two years of work, had no idea of any fixed plan as to what he expected to accomplish, and the amount of fixtures in the mouth was incredible.

Case 6.—F. D., twenty years. This young lady was a teacher and became engaged to a wealthy young man. She had always been keenly sensitive about her personal appearance, caused by protrusion of the incisors with a narrow, vaulted arch, which spoiled an otherwise lovely face. I advised her to go to Dr. Merritt and he succeeded in remodeling her mouth most satisfactorily. By persistent effort she gradually developed her upper lip, and now breathes through her nose entirely. This work was done ten years ago and made a lasting impression on me because of the great improvement in her health.

The foregoing cases were too few to draw any conclusions from, but presented several features in common which I noted in following them: 1. All were greatly benefited in their general health. 2. Mouth-breathing has been overcome in them all. 3. In five, recent examinations have shown plenty of nasal space and straight or nearly straight septa. 4. These patients are no longer subject to the recurrent colds with which they were afflicted before the dental regulation. 5. Adenoids had been removed in five without overcoming the mouth-breathing habit. 6. The regulation should have been done at a much earlier period in all the cases, but, notwithstanding this fact, they all received great benefit. 7. Except in one case, which was badly treated at first, there was no pain and the patients showed improvement soon after the treatment began.

It is a pity the Rhinologist has not worked with the orthodontist during the past so that we could better judge our results and be able to give our patients the benefits of the results. My six cases have become nasal breathers, although not benefited by the removal of their adenoids. They no longer suffer with recurrent colds and I do not have the fear of having to operate upon their noses. The general health and development have shown such improvement it is hard to account for it except we recognize that they have increased nasal space which has been secured by the orthodontist, as well as the benefits derived from proper occlusion, which insures better mastication of the food. If this can be secured in these late cases, would it not be infinitely better to give the children the benefit as soon as the work can be done and thus help them during the period of their most rapid development and probably prevent these deformities of faulty development?

Our text-books on rhinology practically ignore this subject. In the study of the anatomy thousands of skulls have been examined by many observers, and in all, whether broad- or narrow-faced, a very large percentage of septal deviations have been noted. There are many theories about how these deviations are produced, excluding those caused by traumatism.—Reprint from *The Laryngoscope*, November, 1912.

SUGGESTIONS RELATIVE TO METHODS FOR SECURING CO-OPERATION OF CHILD PATIENTS IN ORTHODONTIA*

By Dr. D. P. MacMillan,

Director of Department of Child Study and Educational Research, Chicago Public Schools

In the nature of the case, it may seem superfluous or impossible to make pertinent suggestions regarding such a topic as this. On the one hand, to deal successfully with children in any capacity may be regarded as a personal gift, so that any prescriptive suggestions may be superfluous and unnecessary; and, on the other hand, for the very same reason that one person is naturally, or without formal instruction, successful in any capacity in the management of children, it is rendered impossible to teach or point out to others the methods that bring success to the successful.

While the extremes of this may be obvious to the point of platitude, nevertheless it still remains true that our topic is deserving of attention and of careful consideration.

Naturally I am speaking from the point of view of my own personal experiences as examiner of children, for during my ten years' span of time as director of the Department of Child Study and Educational Research of the Chicago Public Schools, I have had more intimate acquaintance, perhaps, than any other person in dealing with all types and characters. Our daily experiences may bring us into contact with the deaf child normal and sub-normal, the blind child, the out-and-out truant and incorrigible, the crippled child, the child of sub-normal mentality—that borderline group which lies between the highest order of the feebly gifted and the child who is simply backward in school studies; the unmanageable child in home and school; the nervous and excitable, as well

*Read before the American Society of Orthodontists, Chicago, Ill., 1912.

as the phlegmatic and stubborn child; the precocious and suggestible child, and so on throughout the list of variables in human nature; and, furthermore, it must be borne in mind that all these types and traits in children come from home environment and training that present all grades and degrees of eccentricities and inefficiencies.

There is one great difference, however, between my dealings with children and your professional work, of which I must not be unmindful; and that is, that neither from parents, teachers, officers, nurses in attendance, nor examiners, is there a history of any child having suffered any pain. Nevertheless I believe that the resemblances between our lines of work are greater than the suggested differences, and on this basis alone I am emboldened to believe that common principles can be found of sufficiently common applicability to make it worth while to recount some of them.

IMPORTANCE OF FIRST MEETING

As already indicated, I am speaking only of the common requisites for securing the coöperation of the child patient. First and foremost, because your work involves a personal relationship; the initial meeting demands that the attracting elements or captivating features of personality must be in evidence. This means the optimistic temperament; the sunshiny buoyant mood; the happy, hopeful good will and kindly attitude; and withal, the calmness and self-possession that engenders confidence and yielding. No brooding nor sour disposition; no fault-finding and fidgeting; no reserved, retreating, nor indifferent attitude, will ever tend to set up the first elements of right relations between operator and patient. And this is never so true as in the case of a child, and never so imperative are the demands upon positive attractive qualities as in dealing with the difficult child.

Like all service, the alphabet of success lies in the direction of taking the point of view of the served. This is tact, and in your personal intercourse with the child, it is not only the beginning of wisdom, but the end as well. For this reason I believe there should be an introductory visit of the child to your office, at which time the lines of conversation must be set with a point to them well defined in your mind, and at first equally well concealed from the child. At this point pictures of children's mouths may be introduced, emphasizing pretty, well-formed and regular teeth; happy children exhibiting well-formed mouths; and perhaps this first visit may end with the child consenting to show his own mouth, and in your getting him to ask to have his teeth felt for unevenness, etc. On a note, without the child's knowledge, make an appoint-

ment with the mother, guardian, nurse or other attendant, and clinch your first good impression in the farewell.

On the return of the child for the first appointment for work, simply taking impressions or what not, I believe that altogether the best results are secured by having the child alone with you, excluding mother or father, nurse, governess, or older sister, or whoever it may be. In this way your chances are enhanced of working on the basis of the friendship already established.

GAINING THE CHILD'S INTEREST

However, the crucial point begins to loom up large, for it is time to consider how you can proceed to procure the coöperation of the child in the projects you have planned. Apart from the child's pleasant reaction to you as a person, you must go farther and sustain this favorable impression in you as a professional worker, and this means catching the child's interest in your plans. Do not speak of a possible or probable benefit to him, but rather of a certain good. Be as childish and voluble as you please, but bring out that as " others have done it, you can do it easier "; " this child (give name) thought it was hard to do and he found it so easy "; again, " so-and-so said there were tightness and strains and queer feelings at first, but he said that he just kept thinking how good it would feel to have it done good, and he just stuck to it "; and so on with the added and necessary variations. Keep the positive side foremost, and do not even allude to those who failed or were frightened.

KEEPING THE CHILD'S INTEREST

Further, it must be remembered that holding the interest is quite a different matter from merely catching it. Remember, however, that the basic elements are the same. The child's personal coöperation in the work must be emphasized. Keep talking of what this or that child wanted done for him, not done to him; and how you heard so-and-so (a child) say that he or she heard other children say how much better so-and-so looked with teeth adjusted properly—how lots of children said that their little friends admired and envied them. Give names and be otherwise concrete. Moreover, emphasize and repeat numbers of times to your little patient the prominent part he or she must play after leaving you. Employ partnership terms and keep prominent by suggestion the success-feelings.

This matter of suggestion, by the way, is of vital importance, and withal a very simple thing, for upon analysis you will find that to lodge a suggestion successfully, only three things are essential: (1) a clear,

simple, well-defined thought by the suggester; (2) a passive recipient mood on the part of the receiver; and (3) a perfect understanding and mutual sympathy between suggester and recipient. For your purposes you can have your thought clear, not relative to what you want done (that feature of the whole your professional skill will forecast), but rather as to how you are going to proceed to secure coöperation in getting it done. Do not leave it to chance and happy-go-lucky incidents and accidents, but make chance your ally in your well-laid-out plans. The receptive mood you can induce, because, first, your child is in the expectant attitude when he visits you, and your persistence in repetitions will sustain you. Again, if the situation is worked up carefully, and you talk enough along positive lines, you can sustain the mood; and finally, when you secure that perfect understanding between you which is backed up by mutual sympathy, your idea takes hold and persists.

But your query comes naturally at this point, "If active coöperation must be secured, how can one advance in the face of the fact that not enough intelligence or mental stability is present in the child for you to gain a firm foothold to make any progress after work is begun; or, perchance there is pleasantness enough in your relation to the child, but not enough courage or tenacity of purpose on the part of the child-patient to enable you to build up any measure of success; or, further, the child may be of the type that is simply stubborn and resisting, either of the open-faced bravado, non-serious kind, or of the exact opposite, the timid, fearful, passive species, although no less mulish than his laughing, defiant companion.

OBTAINING OBEDIENCE

In all such cases you must be a ready classifier of persons, as, in fact, the great majority of dentists prove to be, and the aspect of coöperation that will now engage your attention is obedience. Recall to mind that in general there are four different kinds of obedience which a child, or for that matter an adult, renders. First, there is passive obedience, arising from mere lack of will, or supineness. In such cases at your hand, the best recourse is in a gentle and wise coercion, the imposing of your ends and aims along the lines already induced in general terms of suggestion. Secondly, there is that type of obedience which comes from liking or affection for the person issuing the commands. The kind of resistance which you encounter from children of this sort may be considered as negligible in your work. Thirdly, you will be sure to meet that type of compliance termed prudential obedience, which calculates the advantages of conforming or not conforming. Here, again, you will find it relative

easy to weigh down the balance in your favor, provided only you sustain the attitudes and methods of procedure suggested. Fourthly, there remains that highest type of obedience which yields to submission of authority of one who knows, and which involves free, intelligent compliance and coöperation. This is the form of obedience which we have been discussing under the term " coöperation."

THE SUB-NORMAL CHILD

Taking these specials in the order previously named, it is probable that more difficulty is encountered with the first of these, the very immature, backward child, with his variety of temperamental grades, than with any other type of special child. The case of this grade of child is all the more important because defective teeth-formation plays such an important rôle, if not understood in the sense of being a primal cause of backwardness—a point which I am now to discuss, but it is a matter which requires consideration in such a body of workers as this—it must at least be stated conservatively that imperfect dental formation and function in some form is an almost invariable accompaniment of subnormality. As a general statement, it may be said that in dealing with a sub-normal child it is always necessary to appeal to the simplest, common, or basic motives, or select one to fit the case, and repeat it over and over again with patience and persistence; and, be it added, if possible get a motive new to the child. With regard to the abnormally timid, one can speak less of methods than in the case of any other type. Here, successful management is a matter so largely of personality, of placating and pleading in the most eloquent sense, that all I aim to do is to suggest the necessity of mild, yet persuasive treatment of immature personalities.

THE STUBBORN CHILD

When we come to consider the next type, I am sure you will all recognize your familiar " friend, the enemy," the stubborn, bold child, who confronts you with open defiance, is best met by an open wager, appealing to his best asset, his effrontery. If you cannot make the bet yourself get action on it by a third party, and the mulish timid child must be approached by some bribe that you determine, indirectly or from others, lies in his circle of ideas and is close to his chief desires.

Moreover, in the treatment of the stubborn child of all types, strange as it may seem, it is better to make commands and requests, or appeal in some form, impersonal or even coöperative. For instance, do not

address the child as "you," with the emphasis on the particular, or the one at the end of the index finger, but rather in statement as "we" must do so and so, or "everyone does thus and so," "it is the best thing to do," etc.

It is said that every person suits his philosophy of life to his temperament; it is no less true that one's personal address, manners, habits and tricks are his own and in a measure unchangeable, but nevertheless I am sure is is not necessary for young men to wait until life's experience and age teach their lessons in your total span of working days, but the art of managing children can be acquired by giving attention to the persuasive arts that bring success to a few. Apart from your professional zeal in technique and skill, I am making an appeal for a greater number of orthodontists desiring to work with children, when indeed such work is the most significant, and if my present remarks shall assist in any degree in increasing the efficiency of those who are undertaking such an immeasurably valuable service with difficult children and youth, I will account my compensation complete.—*Items of Interest.*

SAFEGUARDING ANÆSTHESIA*

By C. S. Tuttle, D.D.S., Philadelphia, Pa.

The general anæsthetics of interest to the dental profession, in the order of their relative safety, are nitrous oxid and oxygen in combination, nitrous oxid, ether, and somnoform. It is unnecessary to go into lengthy detail, suffice to say that I have had experience with all of them. Before the advent of our gas-mixing apparatus I frequently administered ether in cases where caries was to be removed from sensitive teeth. Giving preference to nitrous oxid and oxygen when I am the operator, I like somnoform when I am the patient. It may be of interest to relate my last experience with the latter (I have only taken it twice). I was subject of a clinic on November 10th last, held at my father's office, he being the operator. Dr. C. H. McCowan, of West Chester, administered the somnoform. Dr. Francis A. Faught, our next essayist, took the blood pressure, and our president, Dr. Alexander H. Reynolds, was also present. The operation consisted of the removal of caries from sensitive cavities at gingival margins. The DeFord inhaler was used. After it had been adjusted and a capsule broken, the indicator was opened sufficiently to allow only a trace of somnoform to escape.

* Abstract from a paper read before the Pennsylvania Association of Dental Surgeons, Philadelphia, February 11, 1913.

With the first two or three inhalations sensation in the finger tips was lost. At this stage a tingling sensation was present over the entire body. At my suggestion tests on the cavities were made and found to be still quite sensitive. More somnoform was allowed to flow and drilling commenced. The anæsthetic was then turned off, but it was soon found that more was necessary. It was also noted that a continual flow of somnoform, mixed with air, was better, in my case at least, than the start-and-stop method. The most pleasing feature of the procedure was a lack of sensation in the dentine, which lasted for some time after the anæsthetic was withdrawn. This was demonstrated by repeated tests with sharp excavators and some final touches with a bur. During the early stage I could distinctly feel the pressure of the sphygmomanometer on my arm; but this soon disappeared, although I could see Dr. Faught at work. A partial obtundant effect lasted a full half hour. Aside from this not unpleasant sensation I was normal and should never have known an anæsthetic had been taken. There was no nausea present, neither was there the first time I took somnoform, although it was then taken immediately after a hearty meal.—*The Dental Brief.*

BOOKS AND PAMPHLETS RECEIVED

The Tonsils and the Voice in Science, Surgery, Speech and Song. By Richard B. Faulkner, M.D., Columbia University. The Presbyterian Book Store, Pittsburgh, Pa.

Our Teeth, How to Take Care of Them. By Victor C. Bell, A.B., D.D.S., Lecturer of the Board of Education, New York City; Senior Demonstrator in the New York College of Dentistry; Lecturer and Dental Surgeon to the German Polyclinic. Seventh edition. Carefully revised. New York. Parker B. Simmons, London, 1908.

Popular Essays Upon the Care of the Teeth and Mouth. By Victor C. Bell, A.B., D.D.S. Tenth edition. New York. Parker P. Simmons, London, 1912.

SOCIETY AND OTHER NOTES

To the Members of the Nebraska State Dental Society

On Tuesday, the 2d day of April, 1913, that mysterious messenger whom we call Death removed from our midst Drury J. McMillen, D.D.S., M.D., of Kansas City, Mo., an honorary member of this society.

He was one of the oldest, most honored and greatest loved dentists in the Central West, having spent nearly forty years in practice and teaching. Always giving as he did so freely of his knowledge and advice, no man was ever a more welcome visitor to our annual gatherings, and he will be greatly missed.

His personal character as a man, his skill as a practitioner, his keen interest in affairs professional and his ability as a teacher endeared him to all and placed him foremost among the eminent men of the dental profession. He has left an impress on the lives of those so fortunate as to have known him, that will endure.

Therefore be it

Resolved, That we, the members of the Nebraska State Dental Society, feeling deeply the loss we have sustained, do express our deep sorrow at the death of Dr. McMillen; and be it further

Resolved, That this memorial be sent to the bereaved family and a copy spread upon the minutes of the society and one sent to the dental journals for publication.

M. E. Vance,
J. H. Wallace,
H. A. Shannon.

THE PANAMA-PACIFIC DENTAL CONGRESS

The work of promoting the Panama-Pacific Dental Congress is progressing in a most satisfactory manner, and the Committee of Organization is pleased to report that up to date, in thirty-eight states of the United States, Executive Committees have been appointed to co-operate with it in advancing the interests of the Congress.

Seventeen foreign states and countries and the island possessions of the United States have taken similar action and the appointment of like committees in other states and countries is now pending.

It is hoped that within the next three or four months every state and country in the world, where dental organizations are known to exist, will be represented by an Executive Committee, the duties of which will be to promote an interest in the Congress and secure memberships and contributions to the program.

Instructions defining the duties and authority of these committees will shortly be sent to each of them.

The committee is in almost daily receipt of letters from all parts of the world promising support and attendance, and from present indications the Congress will be the greatest yet held by the dental profession.

Dr. H. A. Frederick, of San Francisco, has been elected to fill a vacancy in the Board of Directors and the Committee of Organization, in order to promote the interests of the Congress and avoid a repetition of the unpleasant controversies and contests for office which disturbed the organization and opening of the fourth International Dental Congress, has effected a permanent organization with the following officers: President, Dr. Frank L. Platt, San Francisco, Cal.; vice-president, Dr. Charles M. Benbrook, Los Angeles, Cal.; treasurer, Dr. Fred G. Baird, San Francisco, Cal.; secretary, Dr. Arthur M. Flood, San Francisco, Cal.

Executive Committee, including the officers named above: Dr. J. Loram Pease,

Oakland, Cal.; Dr. H. G. Chappel, Oakland, Cal.; Dr. R. B. Giffen, Sacramento, Cal.; Dr. A. M. Barker, San Jose, Cal.; Dr. Arthur W. Chance, Portland, Ore.; Dr. G. T. Williams, Seattle, Wash.; Dr. George F. Stiehl, Salt Lake City, Utah; Dr. B. M. Brookfield, Idaho Falls, Idaho; Dr. H. H. Wilson, Phoenix, Ariz.; Dr. H. A. Fredericks, San Francisco, Cal.; Dr. W. A. L. Knowles, San Francisco, Cal.

Nearly $13,000 has now been subscribed to the promotion fund, the Southern California Dental Association at its recent meeting having subscribed $1,000, and its members, as individuals, nearly $1,500 more.

The Pacific Coast States, aside from California, represented on the Board of Directors, are doing their part, and the success of the Congress, so far as can be judged at the present time, seems positively assured.

PANAMA-PACIFIC INTERNATIONAL EXPOSITION

The Panama-Pacific International Exposition at San Francisco in 1915 will display in a most comprehensive manner the achievements and activities of mankind during the last decade. Live, working exhibits are especially desirable, showing not only actual products, but also models in operation to illustrate the apparatus and methods employed in arriving at the finished article. In the domain of Liberal Arts the exhibits will be notably interesting and significant.

The wonderful developments in *medicine* and *surgery* make certain a display of the highest importance and which will be of great benefit to the human family. The mechanical side of surgery will be represented by a complete collection of instruments and appliances used in this important field of human endeavor. There will be shown the most intelligent modern methods employed in the prevention and mitigation of the ills which beset mankind.

These exhibits will be housed in the Palace of Liberal Arts. The exhibits must of necessity be *selective* in character because of the comparative limitations of space, which, by reason of wider participation and the world's more extended productivity, will be more restricted than at previous international expositions. This will emphasize the advisability of applying for exhibit space as soon as possible.

We should be pleased to know that you will give serious consideration to the desirability of your participation. In this connection permit me to call your attention to the keen interest manifested by both American exhibitors and foreign governments, which assures an exposition of the most representative international character. Latin America and the Orient will take very prominent parts. Twenty-six foreign countries have already accepted the invitation of the President of the United States to participate, and thirty-five states have also accepted.

The opening of the Panama Canal means the development of entirely new avenues of commerce, the extent of which it is possible to overestimate. The Orient and Latin America should prove large and profitable markets for the appliances and equipment of *medicine* and *surgery*, and the Universal Exposition at San Francisco in 1915 will afford a rare opportunity to bring your products to their particular notice.

Blank applications for space, the exhibits, classification and other information prepared for the guidance of exhibitors will be forwarded on request.

Yours very truly,

THEODORE HARDEE,
Chief of Liberal Arts.

"President Moore's appointment of Theodore Hardee as chief of the Department of Liberal Arts was yesterday (January 16, 1913) approved by the board of directors.

"Hardee has enjoyed a wide experience in exposition practice. He was principal assistant to Walter B. Stevens, who was the general secretary and also director of exploitation for the St. Louis World's Fair of 1904. Prior to the opening Hardee spent considerable time abroad for that great undertaking, circling the globe as special commissioner with John Barrett, the commissioner-general to foreign countries.

"While in St. Louis Hardee also acted as the St. Louis representative of the Lewis and Clark Exposition of Portland, where he subsequently became assistant to the president. In this capacity he planned and directed all the special events and entertained at that very successful exposition."—*San Francisco Chronicle.*

UNIVERSITY OF ILLINOIS, PRESIDENT'S OFFICE.

URBANA-CHAMPAIGN, ILLINOIS,
August 12, 1913.

MY DEAR SIR:

I take pleasure in announcing that the University of Illinois will reopen its College of Dentistry in the City of Chicago, at the corner of West Harrison and Honore Streets, opposite the Cook County Hospital, on the first day of October, 1913.

The school was closed on June 30, 1912, because of lack of funds. Owing to the liberal appropriation made by the legislature of Illinois at its last session, it will be possible for the University to open the school upon an entirely new basis.

It is our purpose to make a school of which the profession will be proud.

We bespeak your interest and co-operation in the organization and conduct of a University dental school upon a high plane of general culture and professional efficiency. The equipment will be new and up-to-date.

Dr. Frederick B. Moorehead will be Dean and Professor of Oral Surgery and Pathology.

Dr. Edwin M. Gallie will be Professor of Operative Dentistry.

Dr. G. Walter Dittmar will be Professor of Prosthetic Dentistry.

The faculty will be completed at an early date and announced in the annual circular of information.

Faithfully yours,

EDMUND J. JAMES,

President of the University of Illinois.

N. B. Requests for further information should be addressed to the

Dean of the Dental College,
University of Illinois,
Harrison and Honore Streets,
Chicago, Illinois.

NOTE: The University trustees have appropriated the sum of one hundred thousand dollars per annum in addition to the income from the fees of students to take care of these two departments for the two years beginning July 1, 1913. The medical school and the dental school are housed in the buildings of the medical school located in the medical heart of the city of Chicago, immediately north of the Cook County Hospital, which has become one of the great hospitals of the world, and which offers to medical and dental students unique opportunities for observing and studying under the direction of the staff of this institution.

PATENTS

1,040,421, Dental plugger, W. A. Salt, Providence, R. I.
1,041,075, Toothpick-making machine, E. Haupt, Naumburg-on-the-Saale, Germany.
1,041,098, Dental gold cap crown remover, I. B. Kenney, Wadena, Minn.
1,041,270, Dental articulator, A. Gysi, Zurich, Switzerland.
1,041,315, Protective covering for tooth brushes, L. Marz, Monroe, La.
1,041,601, Dental pivot crown remover, Can Broadus Dalton, Cincinnati, Ohio.
1,042,039, Dental disk guide, Jacob B. Schlund, Kennewick, Wash.
1,042,105, Artificial tooth, T. Goodhugh, Brockley, London, Eng.
1,043,284, Dental apparatus, R. E. Zellers, Portland, Ore.
1,044,362, Blowpipe, A. J. Eddy, Long Branch, N. J.
1,044,523, Dental stool, C. M. Hedman, Chicago, Ill.
1,044,651, Blowpipe, J. Harris, Cleveland, Ohio.
1,044,764, Orthodontia appliance, M. N. Federspiel, Milwaukee, Wis.
1,044,614, Dental impression tray, E. E. Wightman, Chicago, Ill.
1,044,892, Swaging device for dental and other purposes, R. Lamb, Liverpool, Eng.
1,045,225, Tooth restoration, F. S. Welden, New York, N. Y.
1,045,552, Tooth brush, A. L. Holtzman, East Orange, N. J.
1,045,586, Dental articulator, T. H. Montague, Blue Island, Ill.
1,045,920, Dental form, R. J. Wenker, Milwaukee, Wis.
1,046,112, Gas blowpipe, H. Schweitzer, New York, N. Y.
1,046,113, Pressure tool for dental castings, H. Schweitzer, New York, N. Y.
1,046,114, Preparation of molds for dental castings, H. Schweitzer, New York, N. Y.
1,046,166, Dental apparatus, J. P. Flaherty, West Bend, Wis.
1,046,560, Dental instrument, D. E. Coulson, Boulder, Col.
1,046,976, Inlay and bridge-casting machine, A. F. Cogswell, Kirwin, Kan.
1,047,296, Toothpick holder, G. A. Rime, Northwood, N. D.
1,047,299, Dental and surgical lamp, C. F. Rodgers, Conneaut, Ohio.
1,048,740, Tooth brush, J. J. Sarrasin, New Orleans, La.
1,048,982, Apparatus for making dental fillings, bridges, and the like, D. S. Mackenzie, New Zealand, Levin.
1,049,207, Dental cuspidor, A. C. Clark, Chicago, Ill.
1,049,290, Combined cuspidor and wash basin, A. C. Clark, Chicago, Ill.
1,049,654, Sanitary tooth brush holder, W. O. Bloom, Worcester, Mass.
1,049,807, Rotary blowpipe apparatus, W. C. Bucknam, Jersey City, N. J.
1,050,282, Rotary tooth brush, H. T. Lipscomb, Baltimore, Md.
1,050,469, Dental appliance, F. O. Keifer, Elk City, Okla.
1,050,660, Dentifrice and floss dispenser, G. Moore, Joplin, Mo.
1,050,661, Pad for artificial teeth, J. Moore, Indianapolis, Ind.
1,050,672, Dental wall bracket, J. H. Macintosh, Sydney, Nova Scotia, Canada.
1,050,864, Tooth brush holder, W. L. Smith, Pittsburgh, Pa.
1,050,933, Attachment for dental articulators, W. W. Evans, Hamilton, Va.
1,051,433, Tooth brush and sterilizer, G. G. Moseley, Redlands, Cal.
1,051,547, Blowpipe apparatus, W. C. Bucknam, Jersey City, N. J.
1,051,843, Breath deflector, J. A. McClure, Bemidji, Minn.

Copies of above patents may be obtained for fifteen cents each, by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.